Medical Library JAN 14 1928

THE BOSTON Medical and Surgical JOURNAL

Owned and Published by the MASSACHUSETTS MEDICAL SOCIETY

OFFICIAL ORGAN OF THE NEW HAMPSHIRE MEDICAL SOCIETY, THE NEW ENGLAND SURGICAL SOCIETY, THE BOSTON SURGICAL SOCIETY, INC., THE NEW ENGLAND PEDIATRIC SOCIETY, AND THE NEW HAMPSHIRE SURGICAL CLUB

Volume 197, Number 28 | JANUARY 12, 1928 | Published Weekly in Boston at 126 Massachusetts Avenue

$6 per Annum, 25c per Copy

CONTENTS

THE NEW ENGLAND SURGICAL SOCIETY

Intussusception. *W. E. Hartshorn* 1297

ORIGINAL ARTICLES

Intracranial Haemorrhage in the Newly-born. *Theodore C. Greene* 1302

Exophthalmic Goiter. *Joseph L. De Courcy* 1305

Some of the Newer Industrial Hazards. *Frederick B. Flinn* 1309

Hernia in Employees of a Grinding Wheel Factory. *W. Irving Clark* 1314

Quantitative Study of Ultraviolet Transmitting Glasses. *Herman Goodman* and *William T. Anderson, Jr.* 1316

An Instrument to Facilitate the Operation of Tonsillectomy. *Louis Arkin* 1318

CASE RECORDS OF THE MASSACHUSETTS GENERAL HOSPITAL

Case 13541—A Case with Anasarca, Cyanosis, Symmetrical Dermatitis, Diarrhea, Mass in the Abdomen and Psychosis. *J. Howard Means.* Case 13542—Was the Patient Misinformed? *A. William Reggio* 1319

EDITORIALS

Some Features of the Nursing Situation 1327

Gradenigo's Syndrome 1327

The Preceptor System in Medicine 1328

This Week's Issue 1329

(Contents continued on next page)

THE NEXT ANNUAL MEETING OF THE MASSACHUSETTS MEDICAL SOCIETY WILL BE HELD IN WORCESTER, TUESDAY AND WEDNESDAY, JUNE 5 AND 6, 1928.

Blumers' Bedside Diagnosis

New Nowhere in the literature will there be found a work on diagnosis so complete, so finely presented, with such weight of authority, as is to be had in this new three-volume work by 64 diagnosticians, edited and unified by Dr. George Blumer of Yale.

This is a **bedside diagnosis**—a composite word-picture of thousands of individual cases.

The **plan** of the work is uniform and simple. There are just two steps in arriving at every diagnosis —**observation** and **induction.** First all signs and symptoms, laboratory and instrument findings are noted. Then this symptom-complex is interpreted in clinical terms.

A set of "rules" are given to guide in the formulation of a diagnosis. These rules are:

1. All symptoms and signs must be compatible with the diagnosis reached.
2. When subjective and objective symptoms apparently conflict, the latter should be given greater weight.
3. A diagnosis of a single disease is more likely to be correct than a diagnosis of more than one disease.
4. When two diagnostic possibilities present, the chances favor the commoner of the two diseases.
5. Diagnoses reached by exclusion are dangerous.
6. Once the diagnosis is made, do not change it without very cogent reasons.

Blumer's **Bedside Diagnosis** is designed for constant use. Each volume is separately indexed, its contents are stamped on the back in gold, and there is a **separate desk index volume** to the entire work with a key word at the head of each column like a dictionary.

This is undoubtedly an outstanding publication.

Three octavo volumes, totalling 2820 pages, with 890 illustrations. By GEORGE BLUMER, M.D., David P. Smith Clinical Professor of Medicine, Yale University Medical School. Per set: Cloth, $30.00 net. *Index volume free.*

W. B. SAUNDERS COMPANY **Philadelphia and London**

Entered at the Postoffice at Boston as Second Class Matter

CONTENTS

(Continued)

THE MASSACHUSETTS MEDICAL SOCIETY
Section of Obstetrics and Gynecology 1329

BOOK REVIEWS
Applied Physiology. Samson Wright 1340
Lectures on the Biologic Aspects of Colloid and Physiologic Chemistry 1340
1926 Collected Papers of the Mayo Clinic and the Mayo Foundation 1340
Pathologische Anatomische Diagnostik and Der Leiche. Hermann Beitzke 1340
Potassium and Tartrates. Ralph W. Webster. 1340

CORRESPONDENCE
Articles Accepted by the American Medical Association Council on Pharmacy and Chemistry. W. A. Puckner 1334
Brazilian Medical Superstition — The Curandeiro. Wm. Pearce Coues 1334
Notes on National Affairs. James A. Tobey 1334
The Origin of the Word "Anaesthesia." J. F. Fulton 1334

MISCELLANY
The Clinic and Its Social Significance 1330
Miss Evans Is Honored as Martyr to Science 1331
Postponement of the Index 1330
United States Public Health Service 1331
NEWS ITEMS 1326, 1335
NOTICES 1337
RECENT DEATHS 1333
REPORTS AND NOTICES OF MEETINGS 1339
SOCIETY MEETINGS 1339

The Massachusetts Medical Society

OFFICERS ELECTED BY THE COUNCIL, JUNE 7, 1927, FOR 1927-1928

PRESIDENT: JOHN M. BIRNIE, 14 Chestnut St., Springfield.
VICE-PRESIDENT: THOMAS J. O'BRIEN, 501 Beacon St., Boston.
SECRETARY: WALTER L. BURRAGE, 182 Walnut St., Brookline.
TREASURER: ARTHUR K. STONE, Auburn St., Framingham Center.

STANDING COMMITTEES FOR 1927-1928

OF ARRANGEMENTS
W. T. S. Thorndike, James Hitchcock, E. P. Hayden, H. Q. Gallupe, T. H. Lanman, F. H. Colby.

ON PUBLICATIONS AND SCIENTIFIC PAPERS
E. W. Taylor, R. B. Osgood, F. T. Lord, R. M. Green, A. C. Getchell.

ON MEMBERSHIP AND FINANCE
D. N. Blakely, Algernon Coolidge, Samuel Crowell, Gilman Osgood, Homer Gage.

ON ETHICS AND DISCIPLINE
David Cheever, W. D. Ruston, S. F. McKeen, Kendall Emerson, A. C. Smith.

ON MEDICAL EDUCATION AND MEDICAL DIPLOMAS
J. F. Burnham, A. G. Howard, R. L. DeNormandie, H. P. Stevens, C. H. Lawrence.

ON STATE AND NATIONAL LEGISLATION
J. M. Birnie, E. H. Stevens, F. E. Jones, T. J. O'Brien, Shields Warren.

ON PUBLIC HEALTH
Victor Safford, E. F. Cody, R. I. Lee, T. F. Kenney, F. G. Curtis

ON PUBLIC INSTRUCTION
A. W. Marsh, W. P. Bowers, W. H. Robey, R. I. Lee, F. W. Snow, Conrad Wesselhoeft, F. S. Hopkins, W. J. Brickley.

ON MALPRACTICE DEFENCE
F. G. Balch, E. D. Gardner, F. B. Sweet, R. P. Watkins, A. W. Allen.

OFFICERS OF THE SECTIONS FOR 1928

SECTION OF MEDICINE
William R. Ohler, Boston, *Chairman;* Albert E. Parkhurst, Beverly, *Secretary.*

SECTION OF SURGERY
Frederick B. Sweet, Springfield, *Chairman;* Walter C. Seelye, Worcester, *Secretary.*

SECTION OF TUBERCULOSIS
John B. Hawes, 2d, Boston, *Chairman;* Walter A. Griffin, Sharon, *Secretary.*

SECTION OF PEDIATRICS
Kenneth D. Blackfan, Brookline, *Chairman;* Joseph Garland, Boston, *Secretary.*

SECTION OF OBSTETRICS AND GYNECOLOGY
Foster S. Kellogg, Boston, *Chairman;* Frederick L. Good, Boston, *Secretary.*

SECTION OF RADIOLOGY AND PHYSIOTHERAPY
Frederick W. O'Brien, Boston, *Chairman;* William D. McFee, Haverhill, *Secretary.*

OFFICERS OF THE DISTRICT MEDICAL SOCIETIES

ELECTED BY THE DISTRICT MEDICAL SOCIETIES BETWEEN APRIL 15 AND MAY 15, 1927

BARNSTABLE—*President,* F. O. Cass, Provincetown; *Vice-President,* S. M. Beale, Sandwich; *Secretary,* J. L. Chute, Osterville; *Treasurer,* H. B. Hart, Yarmouthport; *Librarian,* E. E. Hawes, Hyannis.

BERKSHIRE—*President,* T. P. Hennelly, Pittsfield; *Vice-President,* C. H. Richardson, Pittsfield; *Secretary,* A. P. Merrill, Pittsfield; *Treasurer,* C. T. Leslie, Pittsfield.

BRISTOL NORTH—*President,* F. H. Dunbar, Mansfield; *Vice-President,* T. J. Robinson, Taunton; *Secretary,* J. L. Murphy, Taunton; *Treasurer,* J. V. Chatigny, Taunton.

BRISTOL SOUTH—*President,* P. E. Truesdale, Fall River; *Vice-President,* J. G. Hathaway, New Bedford; *Secretary and Treasurer,* G. E. Borden, Fall River.

ESSEX NORTH—*President,* A. M. Hubbell, Haverhill; *Vice-President,* G. E. Kurth, Lawrence; *Secretary and Treasurer,* J. Forrest Burnham, Lawrence.

ESSEX SOUTH—*President,* E. B. Hallett, Gloucester; *Vice-President,* A. E. Parkhurst, Beverly; *Secretary,* R. E. Stone, Beverly; *Treasurer,* Andrew Nichols, 3rd, Danvers; *Librarian,* C. M. Cobb, Lynn.

FRANKLIN—*President,* A. H. Ellis, Greenfield; *Vice-President,* W. H. Clark, Greenfield; *Secretary and Treasurer,* Charles Moline, Sunderland.

HAMPDEN—*President,* E. A. Bates, Springfield; *Vice-President,* E. P. Bagg, Jr., Holyoke; *Secretary and Treasurer,* H. L. Smith, Springfield.

HAMPSHIRE—*President,* C. T. Cobb, Northampton; *Vice-President,* Werner Hiltpold, Easthampton; *Secretary and Treasurer,* L. O. Whitman, Northampton; *Librarian,* F. H. Smith, Hadley.

MIDDLESEX EAST—*President,* T. E. Caulfield, Woburn; *Vice-President,* D. T. Buzzell, Wilmington; *Secretary,* A. R. Cunningham, Winchester; *Treasurer,* Richard Dutton, Wakefield; *Librarian,* G. W. Nickerson, Stoneham.

MIDDLESEX NORTH — *President,* J. E. Lamoureux, Lowell; *Vice-President,* J. H. Lambert, Lowell; *Secretary,* T. A. Stamas, Lowell; *Treasurer,* E. J. Clark, Lowell; *Librarian,* P. J. Meehan, Lowell.

MIDDLESEX SOUTH — *President,* A. W. Dudley, Cambridge; *Vice-President,* Fresenius Van Nüys, Weston; *Secretary,* S. M. Biddle, Cambridge; *Treasurer,* Edward Mellus, Newton.

NORFOLK—*President,* M. H. A. Evans, Dorchester; *Vice-President,* Victor Safford, Jamaica Plain; *Secretary,* F. S. Cruickshank, Brookline; *Treasurer,* G. W. Kaan, Reading.

NORFOLK SOUTH—*President,* D. A. Bruce, Atlantic; *Vice-President,* G. M. Sheahan, Quincy; *Secretary, Treasurer and Librarian,* N. P. Pillsbury, South Braintree.

PLYMOUTH—*President,* J. P. Shaw, Brockton; *Vice-President,* T. H. McCarthy, Brockton; *Secretary and Treasurer,* L. B. Packard, Brockton; *Librarian,* J. H. Weller, State Farm.

SUFFOLK—*President,* E. P. Joslin, Boston; *Vice-President,* R. L. DeNormandie, Boston; *Secretary,* A. H. Crosbie, Boston; *Treasurer,* John Rock, Boston.

WORCESTER—*President,* F. H. Washburn, Holden; *Vice-President,* A. M. Shattuck, Worcester; *Secretary,* C. A. Sparrow, Worcester; *Treasurer,* G. O. Ward, Worcester; *Librarian,* A. C. Getchell, Worcester.

WORCESTER NORTH—*President,* A. F. Lowell, Gardner; *Vice-President,* H. B. Priest, Ayer; *Secretary,* C. H. Jennings, Fitchburg; *Treasurer,* F. H. Thompson, Jr., Fitchburg.

Fellow Members! We want your support.

THE BOSTON
Medical and Surgical
JOURNAL

VOLUME 197 JANUARY 12, 1928 NUMBER 28

NEW ENGLAND SURGICAL SOCIETY

INTUSSUSCEPTION*

BY W. E. HARTSHORN, M.D., F.A.C.S.

THE type of invagination of the intestine which is commonly described as intussusception presents at times many interesting points in diagnosis. To illustrate:

On August 1, 1927, I examined a patient at my office. He weighed 152 lbs. and was in excellent general condition. There was a right mid-rectus incision extending from the level of the umbilicus for a distance of about 14 cm toward the pubis. A moderate amount of bulging was present at the distal end. Two years and eight months previously, on December 24, 1924, without any premonitory symptoms he had an acute attack of pain while at work. There was general abdominal distress associated with recurrent colicky pains so intense in character that his physician was called and he was sent to Griffin Hospital, Derby, Conn., where I saw him in consultation December 26, 1925. The patient had then been vomiting for about forty-eight hours. He was dehydrated, with pinched facies characteristic of a real abdominal catastrophy. The abdomen was symmetrically distended. Tense but not rigid. Liver dullness partially obscured. No muscle spasm. The only areas of suggested tenderness were in the right iliac fossa. This tenderness was so indefinite that we were uncertain regarding the diagnosis up to the time of opening the abdomen. However there was no doubt about the obstruction and the need for immediate operative interference, as the bowels had not moved since the onset of pain.

Preoperative impression obstruction due either to Meckel's Diverticulum or Intussusception.

Operation:—Mid-rectus incision below the umbilicus on the right side. On opening the peritoneum there was a discharge of serous fluid. On palpation in the right iliac fossa a mass could be felt which proved to be an intussusception. The coils of small intestine were distended and congested. 15 cm of the ileum had passed through the ileocecal valve. This was reduced without difficulty. Closure without drainage.

The patient did very well for ten days when the vomiting recurred and became very persistent. The natural conclusion was that the ileum had again slipped through the ileocecal valve. No sutures had been inserted to prevent this. A second operation was performed. This was attended with great risk to the patient as his condition was very poor. Weight at the time about ninety pounds. On opening the peritoneal cavity we were confronted with masses of adherent and distended intestine. These were viable. Three interesting points were brought to light.

1st. The Intussusception had not recurred.

2nd. Attached to the ileum about 18 cm from the ileocecal valve was a cartridge-shaped tumor about 4 cm long and 1 cm in diameter. This on palpation was very hard and impinged considerably on the lumen of the gut. This tumor had been entirely overlooked at the first operation due probably to the congested condition of the intestine at this time. This portion of the ileum was distal to the second obstruction and ribbon-like in character.

3rd. The present obstruction was due to adhesions of the coils of small intestine to each other and to the abdominal wall along the entire length of the old incision.

Careful dissection of these relieved the obstruction at once.

A fourth surprising fact to me has been that in spite of these matted coils of intestine which must exist at the present time and which made the operation seem almost hopeless and in spite of the tumor in the intestinal wall apparently fibrous in character the patient has put on weight, is able to resume his usual vocation, does not restrict his diet and is in very good condition two years and eight months after the operation.

The subject of Intussusception has been so thoroughly covered by various authors that I would not presume on the time of the Society except to review our experiences with it during the past twelve years at the New Haven Hospital. This covers a comparatively small number of cases, twenty-nine in all. The operations were performed by various members of the staff. No patients have been treated with chronic intussusception. This I think is a rather rare condition.

It is very interesting to note that only one case in an adult was admitted. This was a woman 26 years of age who had had an operation for appendicitis about one year previously. Symptoms of obstruction had been noted four days previous to admission. About two feet of gangrenous gut were resected at operation. The Intussusception was in the ileum. On opening the specimen resected, a strong band of adhesions was found as the causative factor.

The remaining 28 cases occurred in children. The oldest of these was five years and the youngest 19 days.

In discussing these cases I have divided the Intussusception for convenience into five classes.

Class 1. Intussusception extends to ascending colon. 7 cases in this class.

*Read at the Annual Meeting in Manchester, N. H., September 30, 1927.

Class 2. Intussusception extends to splenic flexure. 7 cases in this class.

Class 3. Intussusception of colon extends into sigmoid. 8 cases in this class.

Class 4. Intussusception appears at anus. 1 case in this class.

Class 5. Intussusception self-reducing type. 3 cases in this class.

There were 3 miscellaneous or doubtful cases. These include those who died on admittance.

There was one case No. 63150 in which the record was incomplete.

Deaths eight cases. Two of these admitted in extremis. No operation. Doubtful diagnosis. Six post-operative deaths, all due to delay in diagnosis before admittance.

The First Case, No. 57642, was a patient five years of age. The mother noted on May 21, 1916, after a bowel movement that 4 or 5 cm of rectum came through the anus. This was replaced but the condition recurred. There was blood in the stools.

The patient was sent to the hospital the next day, May 22, 1916.

Examination showed a palpable mass extending from the left side of the pelvis, region of sigmoid, upward toward the splenic flexure.

Operation immediate. Mid-line incision.

Colon and sigmoid large, hard and swollen. Portion of ileum and ascending colon in mass. Impossible to reduce. Mesentery of intussusception cut. Colon incised. Intussusceptum withdrawn. It was gangrenous. End of colon closed.

End to side anastomosis performed. Modified Parker Kerr method.

The Second Case, No. 12167

First symptoms June 28, 1926. Sent to the hospital July 4.

Constant vomiting up to admittance. Abdomen distended. Visible peristalsis. Rectal examination. No mass palpated.

Operation:—Right rectus incision. Mass in right iliac fossa. Ileum through ileocecal valve. Necrotic in places. Mass evacuated through ileocecal ring with difficulty but adherent ileum could not be separated. Resection of ileum. Lateral anastomosis ileum to caecum.

Pathology. Fairly large-sized polyp in lumen of the small intestine of intussusceptum.

The Third Case, No. 64486.

Age 6 months. Seven days' pain and vomiting before admittance.

Examination on entering hospital. Abdomen rigid. Definite peristaltic waves passing from left lumbar region where tumor mass is palpated.

Operation:—Intussusception of ileum through the ileocecal valve. Extends to splenic flexure. Inversion of caecum and appendix. This was reduced without difficulty. The gut was viable. Long mesentery of ileum prevented gangrene.

The Fourth Case, No. 61356. History incomplete. Private case. Intussusception extended through the ileocecal valve to transverse colon.

Admitted April 1, 1917. Died April 2, 1917.

Fifth Case, No. 66940. Admitted June 24, 1918. Pain and vomiting for twenty-four hours previous to admission. Examination:—Irregular mass crossing middle line. No distention. Can be felt through rectum.

Operation:—Mid-line incision. Telescoping gut extended to rectum. Reduced with great difficulty. Intestine appears normal after reduction.

Pathology:—Polypoid mass felt at ileocecal junction. Incision made through intestine and polypoid hypertrophy of the ileocecal valve found.

Valve was excised and gut closed.

Sixth Case, No. 33995. Age 4 months. Admitted July 14, 1924. Blood in stools, July 13. Not much pain. Frequent vomiting.

Immediate operation:—Left mid-line incision. Mass extends into pelvis. Could reduce about seven-eighths of this. When caecum was approached remainder was irreducible. Resection. Enterostomy. Tube inserted.

Case No. 6547. Almost dead on admission. Distended. Tympanitic. White count 52,000. 94% polynuclear. Diagnosis questionable. No autopsy report.

Case No. 45951. 28-days-old baby died a short time after admission.

Admission diagnosis intussusception.

Anatomical diagnosis. Acute appendicitis. Caecitis. General peritonitis. This shows that the case should not have been catalogued as Intussusception.

To sum up the deaths.

Two followed resections.

One followed enterostomy with resection.

One followed enterotomy. Resection polypoid growth at ileocecal valve.

One due to six-day preoperative delay in diagnosis.

One with record incomplete.

Two cases died on admittance. One of questionable diagnosis without autopsy. One proved to be appendicitis at autopsy with caecitis and general peritonitis. Twenty cases lived. Of these in five the caecum was beyond the transverse colon. The diagnosis had been made early.

Three were classed as self-reducing. In one of these, Case No. 64639, the abdomen was opened. The caecum and ascending colon were found congested. The appendix was removed.

In the other two cases No. 19379 and No. 57527 no operation was performed. Masses could be palpated in the abdomen in each case. Continuous vomiting and blood in the stools were the associated symptoms. Diagnosis lay between impacted faeces and intussusception.

The remaining cases were diagnosed early.

Complications. One patient had diabetes. No. 34629—1925.

One patient developed an obstruction nine days after the first operation. This occurred in a loop of the small intestine. Resection was done with lateral anastomosis. No recurrence of the Intussusception. Fixation of the caecum in iliac fossa was done in two cases, No. 54524 and No. 37086. In one case, No. 77953, the ileum was sutured to the caecum.

The appendix was removed in three cases, No. 64639, No. 37086, and No. 54876. This was done only when actually pathological. Every effort was made not to prolong the operation unless absolutely necessary.

The anaesthetic in all the cases was ether by the drop method.

Up to the present time no recurrences have been reported. It is possible of course that some may have occurred and been operated on elsewhere.

COMMENTS

It might be wise in cases with an especially mobile caecum to place a few fixation sutures. This is, however, a rather questionable procedure. As a rule sufficient inflammatory reaction is present to secure this. Suturing of the ileum to the caecum is also justified where the mesentery of the ileum is very long. Any of these manipulations delay the operation. Tumors in the ileum or in the region of the ileocecal valve should only be removed when they produce actual obstruction or are malignant. The X-Ray in the acute type is of very little assistance as the obstruction is obvious from the symptoms. In chronic intussusception it is of value. The bismuth enema as a method of securing reduction or locating the point at which the obstruction occurs is only indicated in doubtful cases without active symptoms. Attempts at reduction by injection of air into the colon are passé. Enemas other than bismuth or barium are justified only in patients with moderate distention and in good physical condition.

The conclusion is rather evident that the majority of cases of intussusception have as a background one of three things.

First—An unusually mobile caecum or ileum. This is common in infancy and is the reason more cases occur at this time than at any other.

Second—A tumor of the ileum near the ileocecal valve. In case this is present and there is also a protrusion of the mucous membrane of the ileum through the valve, producing incompetency, an easy route is offered for the intussusceptum. In one of our cases, a child, polypoid growths were found at the site of the valve and in another, an adult, a cartridge-shaped mass was present in the ileum. It has been estimated that in the adult 35% of the cases are caused by such tumors.

Third—Some factor producing hyper-peristalsis. This may be an obstructing band, a Meckel's diverticulitis, a typhoid or tubercular ulcer or any other inflammatory condition.

DISCUSSION

DAVID W. PARKER, M.D., F.A.C.S.: It has been a pleasure to listen to Dr. Hartshorn's very interesting paper. I was particularly interested in the citation of the adult cases as I have had no experience with the adult type. These cases impressed me as presenting the picture common to intestinal obstruction of all types, without the characteristic history and signs which are usually associated with the infant type. I had the opportunity of reading this paper prior to this meeting and after doing so examined our case records at the Balch Children's Hospital and found some points which may be of interest.

At this hospital we have had a series of six cases; five were under one year of age, and one was four years old. Four came to operation within 24 hours; three died.

The leading symptoms noticed particularly by the mothers were vomiting and bloody stools. Pain is mentioned specifically in only one case. A mass was felt in the right upper quadrant in all but one case, and was found in this one under the anaesthetic. It was possible to reduce the intussusception in all but one case. In this case the duration was 48 hours, and the mass reached to the Sigmoid. A resection and anastomosis was done without difficulty, but the child died.

In one case, a boy four years old, a Meckel's diverticulum was apparently the causative factor. Two other cases in this series were of more than passing interest.

First—A child 6 months old, operated by Dr. O'Connor in 1921. Duration 24 hours. Symptoms—Vomiting and blood in stools. On examination a mass was felt in right upper quadrant. After entrance to hospital the mass could not be felt. At operation the intestines were blue in color and an area of ecchymosis and thickening was found near the terminal Ilium. No intussusception was found. This was probably a case of spontaneous reduction. This child died in two days of Toxemia.

The other case was apparently one which intussuscepted, reduced itself, then telescoped again. The history of this case, as dictated by Dr. Rogers, the attending Pediatrician, contains points of sufficient interest to warrant its presentation here.

"I first saw this baby on the evening of June 23. At that time the family said that she had been vomiting and crying a great deal. Upon examination I found the baby had no elevation of temperature, but on palpation discovered a lump in the right iliac region about the size of a bantam's egg, and while manipulating it it disappeared. I drew the conclusion that I had disinvaginated an intussusception. The baby seemed relieved. Feeling that there might be a tendency to reinvaginate I administered an opiate to the baby for that night, and asked the family to communicate with me early Tuesday morning.

They did this and informed me that the baby slept well Monday night, nursed from the mother, and further stated that the vomiting had stopped. The bowels had not moved. An enema of soap suds was advised, also plenty of water by mouth and regular nursing.

The next night, June 24, I called the family. They said the baby had retained nourishment, seemed a little uneasy, but had rested during the day. Feeling that it was safe at that time to give a physic I asked them to administer 1 dram of Castor Oil. There was one movement from the Castor Oil during the night. The baby was restless, but managed to get a reasonable amount of sleep. June 25 the baby seemed more restless, but the family felt that she was getting along all right. There was no vomiting.

June 25, after 6 P. M., the child started to cry and double up its legs, as though it had distress in the abdomen. The mother held it over her shoulder and rocked it, and while doing so the baby would quiet down and doze off to sleep.

June 26, about 6 A. M., child had a small loose movement, dark green. Some mucous but no blood. The baby was seen by me at 3 P. M. the same day. At this time I found her lying on her back in bed, quiet, with a sober expression on her face, but when

talked to she smiled as any baby would who is apparently comfortable. The minute I reached my hand out to pull down the blanket she took on an expression of pain and fear. On palpation of the belly the child cried as in distress.

Believing that I could feel a sausage-like tumor in the upper right quadrant and wanting to make sure it was not an intussusception I administered ether. With the abdomen relaxed I found a sausage-like tumor high in the upper right quadrant which appeared freely movable and could be grasped between the thumb and finger. Believing that it was intussusception the child was immediately rushed to the Balch Hospital. Operation was performed and a mass 6 inches long was found in right upper quadrant. This was reduced and child recovered.

I have found that the most important factor in saving these children is early diagnosis and treatment. I cannot emphasize too strongly the importance of the history—a point brought out by Dr. Stone in a paper before this Society at Hartford in 1924. This is well illustrated by one of our cases. This child was brought into the hospital with a history of sharp pain, followed by some shock symptoms. The pain went away, as did the shock symptoms. At the time of entrance to the hospital the child was perfectly comfortable and happy. There was a very vague suspicion of a tumor in the upper right quadrant, which became definite under ether. An operation was performed and intussusception was found. It has been our experience that the tumor mass can usually be found with the relaxation of an anaesthetic, and in doubtful cases have no hesitation in administering it.

I have two convictions in regard to the treatment of this catastrophy in children:

First, that an early recognition of a case as a probable acute surgical abdomen will save more lives than the most skilled surgery if carried out after the symptoms have been allowed to progress to the point where the diagnosis is obvious.

Second, that as a general proposition infants and children do not stand prolonged and intricate manipulation well. This is particularly true in obstruction cases. Therefore, I believe the simplest technique is the best.

To my knowledge I have had no recurrences in my few cases and in children I think I would hesitate to suture the ileum as a routine measure. My experience in resection and anastomosis in the irreducible cases has been very disappointing.

I have no definite conclusions as to what is the best procedure in these cases, but am inclined to think that on my next case of this type I will do a double-barrelled enterostomy.

George C. Wilkins, M.D., F.A.C.S., Manchester, N. H.: The writer has given a very interesting summary of a group of cases of intussusception, and analysis of this series bears out the usual comment on the condition—namely, in adult patients the causative factor is usually a growth or some other pathological condition which is secondary: fully fifty per cent. of the cases occur in the first year of life; and the diagnosis of intussusception is most probable when an infant or small child has signs of acute intestinal obstruction. Those rules have been laid down for some time and seem to be borne out in all the reports that have been written.

My experience with intussusception has been very limited as I have had only two cases in which I operated and which were reduced without section of the bowel. I looked up the records of the Elliot Hospital, and found there only two cases in the last ten years. Of course, the Balch Hospital that Dr. Parker mentioned is a children's hospital.

In considering the etiology in infants it is probable that in addition to the mobility of the gut, the development of the cecum plays an important part. At birth the cecum and ileum are of the same size, and within a few months there is a rapid growth of the cecum, causing a disproportion which may cause an incompetence of the ileocecal valve. This makes an easy way for the intussusception to form.

William E. Ladd, M.D., F.A.C.S., Boston: I have been very much interested in Dr. Hartshorn's paper and to note that in New Haven he has the same troubles we have, namely, in getting these patients to operation early which is probably the most important factor in lowering the mortality of intussusception. In the last ten years we have operated on 203 patients with intussusception. In this series there has been a mortality of about twenty-five per cent. I think the reason for most of this high mortality rate is the fact that the diagnosis was made late and the patient seen late.

There are two or three points I would like to bring up which the doctor mentioned; one is the question of recurrence. In that series of cases we had two recurrences; and that is, I believe, not a sufficient reason to warrant any procedure to avoid recurrence. That is, I do think that stitching the ileum or cecum is not desirable. It is of questionable value. It takes time, and a short, quick operation is an important factor in these cases.

When you get a late case the question of what procedure to follow is an interesting one, and what type of resection should be used I am a little puzzled to know. I personally have had three cases which recovered following resection for intussusception; one has been done with a lateral anastomosis and an enterostomy; and another, a chronic case, was done with a simple lateral anastomosis; still another was done by the procedure recommended by Jessett of making an incision into the intussusception and delivering the invaginated gut through that opening in the large bowel and then excising it and tying a tube into the ileum which presented. That appears like a simple procedure and seems

like killing two birds with one stone and ought to be a desirable way of meeting your problem: but I have tried it on two other cases which resulted in the death of both patients. So I am not so enthusiastic about it as I might be.

The question of the double barrelled enterostomy with resection would seem the most logical method of meeting the situation. I have done that only once, and in that case the patient died; so again I am a little puzzled.

During the last two or three years we have had three cases, I think, of what you might consider chronic intussusception. I have had one case where only about five or six inches of ileum was invaginated into the cecum and ascending colon, and it was associated with a tuberculous gland in the mesentery of the ileum. That case couldn't be reduced and a lateral anastomosis was done. That was of six weeks' duration. Dr. Stone had one of as long duration which was easily reduced.

That brings us to another question which I want to bring up on the question of mortality. Time is the main factor, early diagnosis and recognizing the condition; and for that the listening to the mother's story is of paramount importance; and I think there is another factor, and that is the question of the length of the mesentery. One or two cases, which we have seen that have been of long duration when we would expect the bowel to be in very bad condition, have not been in bad condition due to the fact that the mesentery was extremely long and the bowel had not become as tightly invaginated as when the mesentery is short and the circulation has not been cut off to so marked a degree as in those cases with a short mesentery.

LYMAN ALLEN, M.D., F.A.C.S., Burlington, Vt.: I was particularly interested in hearing what Dr. Ladd said because it seems to me that if the condition occurred once, it might easily occur again unless there should be enough peritoneal irritation to cause adhesions and thus prevent it. At Burlington this happened once. The intussusception recurred soon after the child left the hospital and death followed. I had another case afterwards and I stitched the ileum to the ascending colon; and did not get a recurrence. I was extremely interested to hear that there was but one case of recurrence in a series of 200 cases.

JAMES B. WOODMAN, M.D., F.A.C.S., Franklin, N H: I have seen one case of recurrence in a child about a year old, upon which I operated. The ileum had slipped into the cecum, and all that was required was a straightening out of the gut. All went well for two days when precisely the same thing repeated itself and the ileum had slipped into the cecum the same as it had before, and the child didn't survive the second operation. However, as nearly as I can ascertain, it can't be more than two or three per cent. of cases that recur after operation—something in that vicinity.

Dr. Hartshorn spoke of chronic intussusception. I presented a case at the clinic this morning; a woman of 48 years of age who had a four-year history of constipation and loss of weight from 150 to 88 pounds, and at the time I saw her the constipation had become complete obstruction with acute abdominal symptoms. We operated at once, thinking it was malignant, but it was a chronic intussusception of three layers of gut which had become adherent and organized into a mass. She had a fall just prior to the onset of her first symptoms. She was reaching up with her arm and fell to the floor. The fall was followed by abdominal pain which gradually subsided. In that case a resection of four feet of the ileum was done with a lateral anastomosis. The patient made a good recovery.

JOHN HOMANS, M.D., F.A.C.S., Boston: I thought Dr. Hartshorn might be interested in a case recently treated at the Peter Bent Brigham Hospital: an Armenian girl who came to the hospital with a mass in her abdomen of a few days' duration. While we were watching her the mass disappeared and returned in another place, obstruction became evident, she was operated upon and a retrograde intussusception found which was easily reduced. While she was in the hospital she kept having attacks just like the previous one, and on several occasions a mass was felt which soon disappeared. She was thin and had a long mesentery, so we advised her to fatten up if possible. She did so but came back to the hospital about six months later with more trouble of the same kind, a pulse not over 90 and a high white count, vomiting very little, the bowels moving every day. We watched her for some weeks and thought she was recovering but Dr. Cheever operated on her a few days ago and found an intussusception in the upper intestines which he was forced to resect. In this case there was no tumor and the intussusception occurred in a retrograde direction. There seems to be no possibility of preventing such a strange condition.

W. E. HARTSHORN, M.D., F.A.C.S., New Haven: I have nothing further to add.

ORIGINAL ARTICLES

INTRACRANIAL HAEMORRHAGE IN THE NEWLY-BORN

A Study of Its Incidence, Causes, Relation to Breech Extractions, and Diagnosis

BY THEODORE C. GREENE, M.D.

DURING the past fifteen years, trauma to the child's head during delivery has been given increasing attention as a cause of death occurring in the newly-born. Lacerations of the falx and tentorium, intracranial haemorrhage, and medullary compression were, of course, known before as important factors, and no one would now consider them the only ones. However, evidence is accumulating which shows that if trauma to the head is not the most important cause, it is at least important enough to keep in mind while effecting every type of delivery.

I. LITERATURE

The literature is now too great to consider completely in this paper, but a few references will show the trend of investigations.

Cruveilhier, in his "Atlas" of 1832, illustrated intracranial haemorrhage of the newly-born. In 1905, Cushing[1] stated that he was surprised to find that a considerable percentage of still-born and newly-born infants show intracranial haemorrhage at autopsy and he reported cases treated surgically. The history of the subject really begins in 1910, when Benecke[2] emphasized the importance of performing autopsies in a way which will leave the falx and tentorium intact for inspection. Out of thirty-six routine autopsies performed on newly-born infants, Warnick[3] found eighteen cases of intracranial haemorrhage. Vischer[4] reported fifty-one cases of rupture of the tentorium and seventy-four cases of intracranial haemorrhage present among one hundred and eighty-six autopsies of newly-born infants. It is naturally of interest to consider the types of delivery concerned in these cases. Stolzenberg[5] studied seventy-five babies dying from "asphyxia". He reports that out of nine cases with gross anatomical damage to the vertebral column (but more visible in the cord), eight were breech extractions. Bauereisen[3] found eleven cases with tentorial tears in forty-seven fatalities occurring in six hundred and sixty-seven consecutive deliveries. These eleven cases were delivered by breech extraction or by forceps. Meyer and Hauch[6] reported the results of sixty-four autopsies, the fatalities of over 1,200 consecutive deliveries. There were ruptures of the falx and tentorium in eight cases out of 1,100 spontaneous deliveries, in eleven cases out of forty-seven breech extractions, and eight cases out of sixty-six deliveries by forceps. They reported that in forty-six of these sixty-six cases delivered by forceps, the forceps were applied well, with no resulting fatalities, but that following the twenty cases with poor applications of forceps, eight fatal ruptures of the tentorium occurred. They report an additional case of interest. During a Caesarean section, the wound shut down on the child's head for a few seconds. The child died in ten hours and at autopsy a complete double rupture of the tentorium was found, with abundant haemorrhage.

Baily[3] reported forty cases of intracranial haemorrhage in one hundred autopsies. Twenty-three of these forty cases were delivered by artificial means. Zangmeister[7] reported twenty-seven cases of intracranial haemorrhage; six infants survived, and of the twenty-one fatal cases, autopsy disclosed tentorial ruptures in seventeen. Five of these seventeen cases were delivered by forceps, four by version and breech extraction, and one by "manual Hilfe". Out of twelve cases of spinal birth injuries seen by Crothers[8] in two years, eleven cases were delivered by breech extraction.

An excellent paper, both in the consideration of cases and in illustrations, is that by Holland[9]. Out of 168 fresh fetuses studied, tentorial tears were found in eighty-one cases. Intracranial haemorrhage was severe in thirty-six of these, moderate in thirty, slight in nine, and absent in six. The eighty-one cases with tentorial tears included twenty more or less normal vertex deliveries, twenty-six deliveries by forceps, twenty versions followed by breech extraction, and fifteen simple breech extractions. Holland emphasizes the fact that these last fifteen cases followed simple, uncomplicated breech extractions.

II. BOSTON LYING-IN HOSPITAL SERIES, 1909-1925

At the Boston Lying-in Hospital from 1909 to 1925 inclusive, postmortem examinations were made of 177 infants dying before or shortly after birth, with the findings given below. Forty-one of these autopsies, done in the earlier years, did not include examinations of the head, but in all except six of these forty-one cases, adequate causes for death were found. (These were as follows: haemorrhagic disease, 8; enlarged thymus, 9; infections, 9; congenital heart disease, 2; prematurity, 2; maceration, 3; anomaly, 1; pulmonary embolus, 1.) These forty-one autopsies are included in the following list:

CAUSE OF DEATH IN 177 CONSECUTIVE AUTOPSIES, BOSTON LYING-IN HOSPITAL, 1909-1925, INCLUSIVE

Intracranial Haemorrhage (many with tentorial tears)	55
Lacerations of the tentorium (no haemorrhage)	3
Infections	27
Asphyxia	17
Enlarged thymus	11
Haemorrhagic disease	11
Anomalies	9
Toxemia	7
Prematurity	7
Maceration	5
Congenital heart disease	4
General oedema	3
Pulmonary embolus	2
No cause found	16
	177

The table below gives the method of delivery for the fifty-five cases in which intracranial haemorrhage was found. One of the "normal" primiparous labors terminated after four hours, and another after five hours. One of the "normal" multiparous labors was "dry". Of the fifty-five deliveries, twenty-six were those of primiparous patients:

TYPES OF DELIVERY FOR 55 CONSECUTIVE INFANTS DYING WITH INTRACRANIAL HAEMORRHAGE

Breech extraction (three of these preceded by version)	18
High forceps	7
Mid forceps	6
Low forceps	4
Caesarean section	3
Normal labor—Primiparous	7
Normal labor—Multiparous	10
	55

Although trauma is probably the most important factor in causing intracranial haemorrhage, one cannot ignore haemorrhagic disease. Ehrenfest[3] states that in fifty-three cases of intracranial haemorrhage found in 136 consecutive autopsies, haemorrhage in other organs was present in twenty. From this point of view, the first thirty-five consecutive cases of intracranial haemorrhage in this series of fifty-five were studied in detail. In twenty-two cases of intracranial haemorrhage (from slight to severe in amount) there was no haemorrhage elsewhere in the body, although one child was definitely a "bleeder." In thirteen cases of intracranial haemorrhage (from slight to severe in amount), there was haemorrhage elsewhere in the body, especially in the adrenals. These thirteen cases with haemorrhage, both intracranial and elsewhere, were further studied to see if there were any relation between the severity of haemorrhage in the cranium and the severity of the haemorrhage elsewhere in the body. Of nine cases with slight visceral haemorrhage, five had extensive and four had slight cerebral haemorrhage. Of four cases with extensive visceral haemorrhage three had extensive and one had slight cerebral haemorrhage. These figures show no tendency for slight cerebral haemorrhage to accompany slight visceral haemorrhage, but as far as the figures go, a tendency is shown for extensive cerebral haemorrhage to accompany extensive visceral haemorrhage. Haemorrhagic disease is probably not the cause of intracranial haemorrhage, in general, but in certain cases it must be an important factor, as in the following instance. A child died three days after a difficult breech extraction. During life, the bleeding time was four minutes, but the clotting time was over two hours and fifty minutes. Autopsy revealed masses of blood clot over the cortex and about the base of the brain, and also haemorrhages into the scalp, one adrenal, and under the periosteum.

In this series of 177 autopsies, several cases were noticed in which newly-born infants had intracranial haemorrhage, but apparently died from infections. The haemorrhage may have predisposed these infants to infections, but their medullae apparently functioned satisfactorily for several days in spite of cerebral haemorrhage. One of these children died of peritonitis after four (4) days, one of broncho-pneumonia after seven (7) days, and one of meningitis after ten (10) days.

In one child, no immediate complications were found after birth. On the sixth day, dyspnoea was noticed, then laryngitis. It died on the fifteenth day after attacks of dyspnoea and convulsions. At autopsy the consolidation of broncho-pneumonia was found, but also "massive haemorrhage covering frontal and temporo-parietal regions." Blood, new and old, was found in the ventricles.

Intracranial haemorrhage, though serious, is not always fatal. Also, minor lacerations of the tentorium, and more often of the falx, can hardly be considered the cause of death. However, they may be evidence of intracranial pressure which was transmitted to the medulla to a fatal degree, incidentally causing minor tears of the falx and tentorium.

III. DISCUSSION

The large number of instances of intracranial haemorrhage and the high proportion of operative deliveries, especially breech extractions, preceding them, require no comment. The large proportion of primiparous labors concerned, (almost one-half,) is partly, but not wholly, explained by a greater tendency of primiparous patients to go to a hospital, in comparison with multiparous patients. We shall now proceed to a discussion of the mechanical principles involved.

These mechanical principles are easily demonstrated in a convincing manner. Open both sides of the head of a newly-born infant with a scalpel and strong scissors (after removing the skin) along lines parallel to and about one-half inch from the attachment of the falx and tentorium to the skull, completing the fairly circular windows (one on each side) thus begun, by continuing the incisions across the lower

frontal and temporal regions. Remove each cerebral hemisphere through the window in the skull on its side. The falx and tentorium (the latter resting on the cerebellum) now lie before us, undisturbed by our dissection. It will be seen that there are fibrous lines in the falx and tentorium, extending in the direction in whic they are exposed to stress. The falx and tentorium are for the head what stays are for a ship's mast. Now alter the shape of the head in any manner, to simulate supra-pubic pressure in a breech extraction, or pressure from improperly applied forceps, for instance, and notice how the falx and tentorium are put on tension. It is easy to see how excessive pressure applied to the head, especially if suddenly applied, can lacerate these structures which serve both to limit changes in the shape of the head and to decrease the transmission of intracranial pressure to the medulla. In addition, haemorrhage from vessels in these structures may add to the pressure which is transmitted to the medulla.

A comparatively small haemorrhage may be fatal. Jackson[10] mentions forty grams as an average amount. The imprint of the foramen magnum is often seen on the medulla in these cases, and histological changes in the medulla are present. Schwartz[11] reports finding many punctate haemorrhages in the tissues of the hemispheres in these cases, but death must be due to damage to the medulla, either from direct mechanical pressure, or from prolonged anemia secondary to increased intracranial pressure. Occlusion of the cerebral circulation has been shown to produce a picture similar to the asphyxia livida produced by a high carbon dioxide content in the blood[12].

What are the ways in which the child's head is subjected to trauma? Undue supra-pubic pressure applied to the aftercoming head in a breech extraction is doubtless many times responsible. This is probably more dangerous, especially if done hastily, than exceeding the traditional eight minutes in extracting the head. The danger of trauma is often greater than the danger of a high carbon dioxide content in the blood.

Another cause of intracranial haemorrhage is the faulty application of forceps. Primiparous labor, especially if very brief, or dry, accounts for many cases, probably because of the "pounding" of the head upon a rigid perineum. The use of pituitrin may sometimes be responsible. "Holding the head" to delay delivery, except briefly and with a broad surface, is open to obvious condemnation. Schultze's method of resuscitation is unnecessary and crude.

IV. THE MORTALITY OF BREECH EXTRACTIONS

Because breech extractions appeared to precede intracranial haemorrhage in so many cases, the causes of death were studied in two hundred and fifty-eight consecutive breech deliveries at the Boston Lying-in Hospital, excluding breech extractions following podalic versions. One hundred and seventy-four infants lived, and eighty-four were still-born, or died soon after birth.

The dividing line in the diagnosis of prematurity is not easy, but eight calendar months and five pounds, together with the general appearance recorded were chosen. On this basis there were thirty-five fatalities from prematurity. Fourteen fetuses were macerated, there were four monsters, four children with hydrocephalus, four with congenital hearts, and seven infants who died from other miscellaneous conditions. This leaves sixteen fatalities otherwise unexplained, what we might call a "corrected mortality", which is 6% of the two hundred and fifty-eight cases. In half of the sixteen cases, the infants were children of primiparae; eleven were still-births, and five died after birth. In ten cases, it was stated that the delivery was not difficult, it was difficult in three cases, and no mention was made in three cases. In six of these sixteen cases, the diagnosis of intracranial haemorrhage may be made; in three cases by postmortem examination, in one case by a decompression, and in two cases by clinical signs. In these six cases of intracranial haemorrhage there was difficulty in delivery in one case. In the other ten of these sixteen cases, there was no evidence of intracranial haemorrhage.

Two points of importance stand out from these figures. In the first place, although breech extractions loom high in statistics of intracranial haemorrhage, it seems possible to attribute to intracranial haemorrhage only six deaths in the two hundred and fifty-eight breech extractions studied. On the other hand, in five out of these six fatal cases, no difficulty was experienced in delivery, so that even in an uncomplicated, straight-forward breech extraction, there is no assurance that intracranial haemorrhage will not take place. Holland's figures also support this statement.

Since breech extractions appear to be the commonest cause of intracranial haemorrhage, and since intracranial haemorrhage occurs in some simple, uncomplicated breech extractions, to use this method of delivery as a routine procedure in almost all normal cases of labor is deliberately looking for trouble. Intracranial haemorrhage does occur in normal vertex deliveries also, but far less often, especially in relation to the relative frequency of the two types of delivery.

V. CLINICAL NOTES

Some clinical notes from the histories of these fifty-five cases with intracranial haemorrhage may be of interest. Five cases died before birth, twenty-nine during the first two days of life, and the rest during the following twenty-five days. In the first thirty-four living cases, signs of intracranial haemorrhage were present to a decided degree in twenty-five, to a moderate de-

gree in one, and absent in eight, but in four out of these eight cases, death occurred during the first day.

Infants with intracranial haemorrhage are apt to be abnormally drowsy, cyanotic, and to nurse poorly, sometimes vomiting. The eyes may deviate to one side, or there may be an internal strabismus. The pupils may be dilated, not re-acting to light, or (less often), they may be pin-point in size. Ptosis and nystagmus are sometimes present. Convulsions are almost always repeated. Twitching of the face, eye-lids, eyes, or lips is unilateral or bilateral. The extremities enter spasm in flexion or extension, or may be flexed repeatedly. Opisthotonos, extension of the head, or drooping of the face sometimes occurs. The respiration tends to be shallow, gasping, rapid, stertorous, or moaning, ending in a grunt, and Cheyne-Stokes in character at the end. The child may utter a "hydrocephalic" cry. The fontanelles are at first tense, and then bulging, but naturally less so in infratentorial haemorrhage. The spinal fluid is increased in pressure, and bloody.

SUMMARY

1. Intracranial haemorrhage is the most frequent cause of death in the newly-born, found in 55 out of 177 consecutive autopsies performed at the Boston Lying-in Hospital.

2. The most important cause of intracranial haemorrhage is trauma to the child's head during delivery, especially trauma suddenly applied.

3. Haemorrhagic disease is also an important factor in producing intracranial haemorrhage.

4. Intracranial haemorrhage occurs most often in primiparous and operative deliveries, and especially in connection with breech extractions.

5. However, in this clinic, only 6 cases of intracranial haemorrhage occurred in two hundred and fifty-eight consecutive breech extractions (not preceded by version).

6. Intracranial haemorrhage occurs in a number of simple, uncomplicated breech deliveries which are not considered difficult at the time. This ever-present possibility emphasizes the folly of the routine use of version and breech extraction for all deliveries.

7. The diagnosis of intracranial haemorrhage in the newly-born is usually definite and the outcome not always fatal.

The writer wishes to thank Dr. Franklin S. Newell for permission to make these studies.

REFERENCES

1 Cushing, H.: Concerning Surgical Intervention for Intracranial Haemorrhage of the Newly-born. Am. Journal of Med. Sciences, CXXX, New Series, 563, Oct., 1905.
2 Benecke, R.: München med. Wchschr., LVII, 2125, 1910.
3 Quoted in Ehrenfest, H.: Birth Injuries of the Child, N. Y., 1922.
4 Vischer, A. L.: Abstr. in Zentralbl. f. Gynäk, XLVIII, 851, 1919.
5 Stollzenberg: Berl. klin. Wchnschr., XLVIII, 1741, 1911.
6 Meyer and Hauch: Arch. d'Obst. et de Gyn., I, 246, 1912.
7 Zangmeister, W.: Zentralbl. f. Gynäk., XLV, 457, 1921.
8 Crothers, B.: Medical Clinics of N. A., March, 1922.
9 Holland: On Cranial Stress in the Foetus during Labour and on the Excessive Stress on the Intracranial Contents; With an analysis of 81 cases of Torn Tentorium Cerebelli and Subdural Cerebellar Haemorrhage. Trans. Edinburgh, Obs. Soc., XL, 112, 1919-1920.
10 Jackson, H.: Journ. Am. Med. Assn., LXXIX, 1394, 1922.
11 Schwartz, P.: Ztschr. f. Kinderk., XXIX, 102, 1921.
12 Stewart, et al.: Journ. Exper. Med., VIII, 289, 1906.

EXOPHTHALMIC GOITER

A Logical Explanation of Its Signs and Symptoms*

BY JOSEPH L. DE COURCY, M.D.

THERE seems to be a widespread tendency nowadays to base diagnosis on the presence of certain characteristic symptoms, giving scant attention to the reasons underlying their existence. This practice is well exemplified in the case of exophthalmic goiter. When a patient who is losing weight in spite of a good appetite is found to have a rapid pulse, protruding eyeballs, a tremor in the fingers and an enlargement in the neck, the average physician concludes: "He has the four cardinal symptoms. He must have exophthalmic goiter." But, often as not, he does not give a thought to the why and the wherefore of these symptoms.

Very few of us ever stop to think of the underlying cause of the exophthalmos, tachycardia, tremor or enlargement in the neck; of the explanation for the benefit from Lugol's solution; or of the principles controlling the choice between medical and surgical treatment. Many of these questions are, of course, unanswerable in the present state of our knowledge; but that is all the more reason serious thought should be given to their solution.

The newer pages of medicine have not all been written by laboratory research workers. There is still abundant room for careful clinical observations based on exact anatomic and physiologic knowledge. And exophthalmic goiter is peculiarly a disease adapted to clinical observation, inviting all studious physicians to investigate the pathology which gives rise to its complex symptomatology.

RÔLE OF INVOLUNTARY NERVOUS SYSTEM

It has been known for years that the clinical signs of exophthalmic goiter closely approximate the phenomena produced by stimulation of the inferior cervical sympathetic ganglia. Recently the close relation between the involuntary nervous system and the symptoms of exophthalmic goiter has been substantiated by the work of Hyman and Kessel[1]. These investigators have

*From the Department of Surgery, De Courcy Clinic, Cincinnati.

emphasized the fact that the symptoms of exophthalmic goiter are identical with those produced in normal individuals by substances having a strong affinity for the sympathetic nervous system, such as epinephrin.

Hyman and Kessel believe that the involuntary nervous system may produce the manifestations of exophthalmic goiter through the action of some unknown circulating sympathomimetic toxin. Such substances, however, have not as yet been isolated, although epinephrin is capable of producing these effects. Another possibility is the loss of some restraining influence, such as that of the hormones of the parathyroid glands or the suprarenal cortex.

According to an old theory, it was held that the symptoms of exophthalmic goiter are due to thyroid oversecretion. In this connection, it is known that feeding with very large quantities of thyroid extract may occasionally produce an incomplete picture of exophthalmic goiter. As hyperplasia of the thyroid gland occurs regularly in cases of exophthalmic goiter, it would seem logical to attribute the disturbance to thyroid hypersecretion. Furthermore, the fact that myxedema, which is alleged to be the antithesis of Basedow's disease, is recognized to be due to a hyposecretion of the thyroid gland and that the symptoms of exophthalmic goiter are relieved by subtotal thyroidectomy would seem at first thought to point to an important relation between the quantity of thyroid secretion and the existence of the disease.

Nevertheless the view that the symptoms of Basedow's disease are due entirely to thyroid hypersecretion is untenable. In the first place, they can be produced only by doses exceeding the secretory capacity of the gland; and two of them —exophthalmos and glandular hyperplasia— cannot be elicited by even very large doses. Secondly, the hyperplasia is not associated with any increase in the output of the thyroid hormone; in fact, the actual storage of this substance is diminished. Thirdly, the symptoms of myxedema and exophthalmic goiter may coexist, showing that the two diseases are not truly antithetic. Finally, it is not permissible to ascribe all of the benefit of subtotal thyroidectomy to the operation itself, as much of it is undoubtedly due to the rest before and after operation.

The most likely explanation of the pathogenesis of exophthalmic goiter is that the condition is dependent on a disturbance of the sympathetic nervous system influenced by various sympathomimetic agents, such as infection, psychic upset and some obscure thyrogenic factor. This hypothesis is entirely consistent with our ability to produce the symptoms of exophthalmic goiter by stimulating the inferior cervical ganglia.

Chauffard and Girot[2] assert that the first phase of exophthalmic goiter is a change in the thyroid gland with subsequent hyperthyroidism and that the second phase is a hyperepinephrinemia, from an exaggerated secretion of the suprarenal glands. This view would support Cannon's theory of the synergistic action of the thyroid and suprarenal glands.

THE OCULAR SIGNS

Exophthalmos. Years ago Claude Bernard produced protrusion of the eyeballs experimentally by electric stimulation of the cervical sympathetic. The orbitalis muscle, which is supplied by this chain of nerves, is stretched across the sphenoidal fissure at the apex of the orbital cavity. Contraction of this muscle following sympathetic stimulation pushes the capsule of Tenon and its contents forward, thus causing exophthalmos.

Another factor in the production of exophthalmos is a sustained contraction of the levator palpebrae superioris muscle, which draws back the upper lid so as to expose the sclera. This action is brought about by the contraction of the Müllerian muscle fibers in the lid, which are under sympathetic control.

Thyroid overfeeding cannot produce exophthalmos. However, Maurice[3] was able to show a direct relation between this condition and overactivity of the suprarenal capsules. The conclusion seems well founded that protrusion of the eyeballs results from the response of the unbalanced involuntary nervous system to some sympathomimetic substance.

Signs of von Graefe, Stellwag and Moebius. von Graefe's sign is a failure of the upper lid to follow, or a lagging behind when the eyeballs are directed downward. The result is that a margin of white sclera above the pupil is exposed and there is a widening of the palpebral fissure. Stellwag's sign refers to the infrequency of blinking in exophthalmic goiter; Moebius' sign, to a weakness in the convergence of the eyeballs, as elicited by attempts at fixation on the finger held nearby.

All of these ocular signs may be produced experimentally by stimulation of Müller's muscle, also called the tarsal muscle. This muscle consists of a thin sheet of involuntary muscle fibers found in the vicinity of the convex borders of the tarsal plates. In the upper lids, the fibers intermingle with those of the levator palpebrae superioris; their function, therefore, is to retract the eyelid. The Müllerian muscles, however, are supplied by sympathetic fibers derived from the cervical sympathetic chain; whereas, the levator palpebrae superioris is innervated by the antagonistic autonomic system through the oculomotor nerve.

It is entirely reasonable to suppose that not only the exophthalmos but also the von Graefe, Stellwag and Moebius signs are caused by the action of some sympathomimetic substance, like epinephrin, on an oversensitive sympathetic nervous system.

THE CAUSE OF TACHYCARDIA

A pulse rate consistently above 90 and subject to marked acceleration following slight exercise

or psychic influences is one of the characteristic features of Basedow's disease.

The tachycardia does not arise from an oversecretion of thyroid hormone, as was at one time supposed. Marine and Lenhart[4], after extensive histologic studies on thyroid glands in exophthalmic goiter, came to the conclusion that the differences in pulse rate under normal conditions and in cases of colloid and of exophthalmic goiter are so slight as to suggest no causal relation. Kendall[5] has shown that there is no tachycardia after the administration of thyroid substance. If, however, amino acids are injected at the same time, the pulse rate is greatly increased.

The accelerator nerves of the heart, whose function is directly antagonistic to that of the vagi, arise from the cervical sympathetic ganglia. It has long been known through physiologic experimentation that stimulation of these nerves or the ganglia from which they arise produces marked acceleration of the pulse, or conversely, that section of them slows the heart rate to a pronounced degree.

The attacks of tachycardia in exophthalmic goiter are associated with the subjective symptoms of sympathicotonia, as described by Eppinger and Hess. The patient is conscious of his heart beat, describing it as palpitation; he feels as if his heart were up in his throat; he reacts with a state of nervous excitement and anxiety; and the functions of the gastro-intestinal canal are inhibited.

Most authorities hold that the tachycardia of Basedow's disease results from stimulation of the cardio-accelerator centers in the cervical sympathetic ganglia by some sympathomimetic substance having an action similar to that of epinephrin. Thus considered, it is apparent that both the cardiac and ocular symptoms may well arise from the same or closely related sources.

Cardiac disorders developing during the course of exophthalmic goiter are of frequent occurrence. They have generally been attributed to tachycardia and overstimulation. However, Boas[6] has called attention to two hitherto neglected factors as largely responsible for the cardiopathy of Basedow's disease.

In the first place, the tremendous dilatation of the vessels of the thyroid gland short-circuit the blood flowing to the neck and thus increase the load on the heart in the same manner as an arteriovenous aneurysm. Secondly, the heightened oxygen consumption produces an increased minute volume flow of the blood, which may be 25 to 60 per cent. greater than normal. In Boas' opinion, the increased work thus thrown on the heart is the principal cause for cardiac dilatation, hypertrophy and decompensation in exophthalmic goiter.

REASON FOR INCREASED BASAL METABOLIC RATE

One of the most essential findings in toxic cases of exophthalmic goiter is an increase in the basal metabolic rate. This explains why individuals with this disease may have excellent appetites and nevertheless lose weight.

An important factor in accounting for the increased metabolic rate is the increased aeration in the lungs. A greater supply of oxygen naturally increases oxidation and the height of caloric consumption.

We have long known that epinephrin relieves asthmatic seizures by relaxing the involuntary musculature of the lungs and bronchi. This result is accomplished by sympathetic stimulation. Thus the sympathetic nerves of the respiratory system, when stimulated, greatly increase the breathing capacity and may in this way account in large measure for the increased basal metabolic rate.

It must be admitted that an increased secretion of thyroid hormone may directly heighten the basal metabolism. This factor probably plays a part in some cases. However, as the output of thyroxin may be normal or diminished in toxic cases of exophthalmic goiter, we cannot attribute the metabolic change solely to the thyroid hormone.

As is well known, very high basal metabolic readings, amounting to as much as 50 to 90 per cent. above normal, may be obtained in cases of exophthalmic goiter with toxic effects. Feinblatt and Eggerth[7] have pointed out that there is usually a direct proportion between the basal metabolic and the basal pulse rate. This, in itself, would indicate that these two symptoms have a common origin.

ORIGIN OF THE TREMOR

A fine rapid tremor, best observed in the outstretched and separated fingers, is one of the cardinal symptoms of exophthalmic goiter. In severe cases, this tremor may affect all the muscles of the body.

At first thought it may seem difficult to explain a tremor in voluntary muscle on the basis of sympathetic stimulation. But Langley has shown that all voluntary muscles have a definite sympathetic nerve supply. In fact, tonus in voluntary muscles is largely the result of a steady influx of stimuli through the sympathetic fibers in the peripheral nerves and the gray and white rami of the spinal roots, whereas voluntary movements result from impulses descending through the medullated fibers. Thus considered, the tremor of exophalmic goiter is really a disturbance of muscle tonus, resulting from overstimulation of the sympathetic innervation. And again we revert to the common cause for the symptoms of exophthalmic goiter, namely, stimulation of the sympathetic nervous system by some unknown circulating sympathomimetic toxin.

VASOMOTOR SYMPTOMS

Vasomotor symptoms, especially of the face, are common in exophthalmic goiter. Such patients flush on slight excitement, and a throbbing of the arteries of the head and neck is sometimes

observed. Examining the fundus oculi, one frequently detects a distinct pulsation of the branches of the arteria centralis retinae. Another common vasomotor symptom is profuse sweating, usually on the face; it may be unilateral or bilateral.

The vasomotor symptoms obviously arise from sympathetic irritation. They may be reproduced experimentally by stimulating the cervical sympathetic nerves. Vasomotor symptoms in the extremities have a closely associated origin, as has been shown by Scott.

GASTRO-INTESTINAL SYMPTOMS

Reference has already been made to the most pronounced alimentary symptoms of exophthalmic goiter, namely, progressive loss of weight in spite of an excellent appetite. This condition, as has been pointed out, is a direct result of the increased basal metabolism.

The most striking symptoms directly referable to the digestive tract are vomiting and diarrhea. However, they usually occur only late in the disease and are probably secondary to disturbance of the vasomotor centers.

The flow of saliva may be increased; more rarely there is dryness of the mouth. The increased flow of saliva results from an overactivity of the nerves supplying the salivary glands. Ordinarily the acidity of the gastric juice is reduced.

SYMPTOMS REFERABLE TO THE THYROID GLAND

Enlargement of the thyroid gland is the rule in exophthalmic goiter, although this condition is not invariably present. Pathologic examinations have shown that the enlargement is due to hyperplasia of all the elements of the glandular structure but that the storage of colloid material, iodine and thyroxin is actually diminished.

The bruit heard over the thyroid gland in cases of exophthalmic goiter may be accounted for by the close proximity of the goiter to the common carotid artery. Since the goiter presses upon the vessel so as to narrow its lumen, the mechanical conditions are such as to favor the production of a murmur; that is, the blood rushing through the narrowed lumen suddenly pours into the wider vessel beyond the limits of the goiter, thus giving rise to the eddying currents which cause the murmur.

The consistency of the enlarged gland is an important factor determining the presence or absence of a bruit. Adenomatous glands, being freely movable, ride upon the carotid artery without constricting it; therefore, no bruit is produced. The hyperplastic gland of exophthalmic goiter, on the other hand, is fixed and necessarily constricts the artery. These pathologic conditions account for the frequency of a bruit over the thyroid gland in case of exopthalmic goiter and its infrequency in cases of adenomatous goiter. It has been observed that, as the consistency of the goiter is diminished by the administration of Lugol's solution, the bruit gradually disappears.

It is interesting to note that filaments of the sympathetic nerves encircle the inferior thyroid arteries. If, for any reason, there is an increase in the diameter of these vessels, irritation of the cervical sympathetic ganglia may result from this source. This irritation may, in turn, stimulate the heart. The increased force of the heart beat then increases the diameter of the inferior thyroid arteries still further, thus again increasing the tug on the sympathetic nerves and setting up a vicious circle (McClintick).

Considering all the available evidence, great weight must be given to the view that most, if not all, the symptoms of exophthalmic goiter result from irritation of the sympathetic nerves. These symptoms may be produced experimentally by sympathetic stimulation. And it appears probable that an instability of the sympathetic nervous system, in conjunction with the presence of some unknown sympathomimetic toxin, may explain the complex symptomatology of Basedow's disease.

As Lieb, Hyman and Kessel[8] have demonstrated, autonomic imbalance presents all the symptoms of exophthalmic goiter with the single exception of the increased basal metabolic rate. Furthermore, the majority of patients give a history, past or present, of autonomic imbalance and the actual transition from autonomic imbalance to exophthalmic goiter has been observed.

The underlying cause of the disturbance of the sympathetic nervous system and the nature of the sympathomimetic toxin are still unknown. The disorder may be initiated by emotional states, such as fright, worry or shock; by systemic infections or localized foci, particularly focal infection in the rhinopharyngeal tract; by toxemias of any kind; by too quick a return to normal activities after debilitating diseases, such as influenza; by faulty diet; by pressure on the cervical sympathetic nerves from an enlarged colloid or adenomatous goiter; or by various other causes.

CONCLUSIONS

1. Careful clinical study of the complex symptomatology of Basedow's disease will greatly clarify our knowledge of this common disease.
2. Most of the symptoms of exophthalmic goiter may be explained on the basis of an imbalanced sympathetic nervous system subjected to the action of some circulating sympathomimetic toxin.
3. Exophthalmos and the other ocular symptoms of Basedow's disease are due to stimulation of the sympathetic fibers by which the orbitalis and Müllerian muscles are innervated.
4. Tachycardia in Graves' disease results from stimulation of the cardio-accelerator centers in the cervical sympathetic ganglia.
5. The increased basal metabolic rate seems to be due to two factors; namely, the increased aeration in the lungs resulting from dilatation

of the bronchial tubes and a direct effect from the hormone of the thyroid gland.

6. The tremor is produced by irritation of the sympathetic nerve fibers distributed to all voluntary muscles.

7. The goiter itself arises from hyperplasia of the thyroid gland. However, there is no increase of colloid substance, iodine or thyroxin. The bruit over the gland results from the partial compression of the common carotid artery by the enlarged organ.

8. With the single exception of increased basal metabolic rate, autonomic imbalance presents all the symptoms of exophthalmic goiter.

REFERENCES

1 Hyman, H. T., and Kessel, L.: Exophthalmic Goiter (Graves' Syndrome) and Involuntary Nervous System. J. A. M. A., 85:1017, (Oct. 3) 1925.
2 Chauffard, A., and Girot, L.: Pathogénie thyro-suprénale due Basedowisme. Rev. franc. d'endocrinol., 3:145, (June) 1925.
3 Maurice: Pathogénie de l'exophtalmie dans la maladie de Basedow. Lyon méd., 119:637, (Oct. 20) 1912.
4 Marine and Lenhart, cited by McCarrison, R., in The Thyroid Gland, New York, William Wood & Co., 1917, p. 213.
5 Kendall, E. C.: Recent Advances in Our Knowledge of the Active Constituent in the Thyroid; Its Chemical Nature and Function. Boston M. and S. J., 175:557, (Oct. 19) 1916.
6 Boas, E. P.: Cardiac Disorders Accompanying Exophthalmic Goiter. J. A. M. A., 80:1683, (June 9) 1923.
7 Feinblatt, H. M., and Eggerth, A. H.: Clinical Laboratory Medicine, New York, William Wood & Co., 1925, p. 237.
8 Lieb, C. C., Hyman, H. T., and Kessel, L.: A Study of Exophthalmic Goiter and the Involuntary Nervous System. J. A. M. A., 79:1099, (Sept. 30) 1922.

SOME OF THE NEWER INDUSTRIAL HAZARDS*

BY FREDERICK B. FLINN, PH.D.

INDUSTRIAL Toxicology is only one of the fields of preventive medicine, but one which is increasing in importance as we gain mastery over diseases of bacteriological origin. It is thought that exposure to industrial poisons may be the explanation of some of the obscure symptoms of which such patients often complain, but for which there is no apparent cause. An understanding of industrial processes and their hazards is often beyond the ken of the medical man and he must depend upon Federal, State or collegiate agencies to keep him informed as to developments along these lines. An industrial poison has been defined by Dr. Legge as a poisonous substance that is employed, produced, or somehow occasioned in an industrial occupation, generally brought about inadvertently and against the well being of the person employed, and this too often in the absence of sufficient precaution.

As has been hinted, the average medical man has very little chance or time to study our industrial processes and it is only within comparatively recent years that we have obtained a better understanding of even our older hazards, the methods one should use to combat them, the mode of ingress of the poisons into the body, the conditions under which they are most likely to be absorbed by the body, the tolerance point, where stored and how eliminated. We now know, or think we know, that many of these industrial toxic substances are rendered harmless if we can keep the amount present in the air or dust below a certain maximum point.

One cannot place too much emphasis on the effort that has been made to solve this problem through ventilation. Ventilation is of the utmost importance in industry, and by ventilation we do not mean the simple processes we think of as ventilation in connection with our homes and public buildings. We refer more particularly to local ventilation where the hazard is removed at its source and is not permitted to escape into the general work room. In order to decide on the proper ventilation, one must be familiar with the physical characteristics of the various industrial hazards. Some of these hazards can be handled by an upward ventilation or exhaust system, while others will require a downward system. Others can be controlled by a greater dilution of the gas or dust by outside air. But having once determined the tolerance of the human system to a certain exposure, the problem of remedying the condition passes from the hands of the medical man into those of the ventilating engineer.

I do not know of a better illustration of the effect of ventilation in bettering the conditions under which a man works than that which has occurred among granite workers, where an effort has been made by the United States Public Health Service to determine whether or not a standard of dustiness could be set up as a maximum which might safely be set as the limit for that industry.

For this study the granite workers were divided into four groups, A, B, C and D, according to the amount of dust to which they were daily exposed in their work. Groups A and B were exposed to dust concentrations of from 60 to 37 million particles of dust per cubic foot and from 44 to 27 million particles respectively, Group C to 20 million particles, and Group D from 9 to 3 million particles per cubic foot. Tuberculosis, the disease most prevalent among granite workers, was studied to determine its prevalence in these four groups. It was found that there was a very high rate of absence from work due to tuberculosis in groups A and B while the records show almost no absence on account of this disease in groups C and D. In studying the death rate from tuberculosis in these four groups, it was also found that it was low in both the C and D groups, where the amount of dust per cubic foot was comparatively low. One would conclude from these figures that a certain amount of this dust is tolerated by the human system. The time element must be taken into account in any discussion of this nature, and it has been noticed

*Read before the Clinical Congress of the Connecticut State Medical Society at New Haven, September 22, 1927.

that for the first ten or fifteen years of employment the tuberculosis rate is only a little higher among granite workers than among the general population. After this period, however, it increases with extreme rapidity in groups A and B. Here again we find a low incidence of tuberculosis in groups C and D, even among men who have worked for thirty years in this industry.

Lead continues to be our most important industrial poison, with the exception of carbon monoxide, in spite of the time and effort that have been spent in studying its effects. The more evident physical signs of lead intoxication were recognized as early as the first century A. D. Saturnine encephalopathy is rarely encountered in our day and few doctors now come in contact with it. It is more commonly found among painters than among any other industrial workers. I have seen only five or six cases where lead intoxication has manifested itself in this way. It is oftenest seen in cases where lead salts have been taken with suicidal intent and where the system has been temporarily flooded with lead compounds. Lead seems to have some peculiar attraction for lipoid compounds and for this reason tends to affect the nerve tissues. This explains why we find so many of its intoxicating symptoms making their appearance in the nervous system. The victim of saturnine encephalopathy usually suffers from persistent insomnia and becomes delusional and restless, with exaggerated movement of all the muscles of the body. The patient becomes maniacal and, if death intervenes, dies apparently from exhaustion. We have been able to reproduce all of these symptoms in animals and, if we are correct in our observation, the immediate cause of death is a momentary paralysis of the respiratory center, for if the animal can be kept alive during this momentary paralysis by artificial respiration it will recover and show no further illness. We have caused the symptoms of saturnine encephalopathy to reappear daily for a week by repeated doses of lead salts, and then had the animal recover completely, showing no other sign of lead intoxication. Work along this line is being carried on in our laboratory and we hope at some future date to give a more complete report on our observations.

It is not the acute cases of lead intoxication that furnish the most interesting part of the public health aspect of this metal. Few persons not cognizant of this side of public health work realize the extent to which the human race is exposed to lead. There are over two hundred industries in which there is some lead exposure, to say nothing of the exposure in our homes from lead plumbing, etc. Recently cases of lead intoxication have come to our notice among users of snuff. Here lead chromate has been added to the snuff to increase its weight. Forty-eight deaths occurred among women between 1914-1924 from lead intoxication, practically all of whom had had no industrial exposure. Cosmetics, hair tonics and similar preparations were responsible in some of the cases. Recently I had a case reported to me where the young woman had used lead plaster to keep the braces in her mouth in position. Cases have occurred among small children who have gnawed the paint off of their cribs or toys. One of the most interesting cases of lead encephalopathy that I have a record of occurred in a nursing infant who had ingested lead from its mother's breast which had been treated with lead plaster for fissuring of the nipple. The extent of the lead hazard has been emphasized within the past two years, when a study of the public health hazard from "ethyl gasoline" was made. The study was complicated by the unsuspected fact that a much greater number of persons were excreting lead than had commonly been thought to be the case. This statement apparently holds true only for certain localities, for our laboratory has examined the stools of approximately five hundred people in New York City and found lead was present in only six per cent. Dr. Fairhall of Harvard tells me that this confirms his observations made around Boston. Investigation has shown that the drinking waters of many of our cities contain this metal because lead has been used either in making connections from the street to the house or, as in the case in one large city, the brass pipes or connections are lined with lead. Fortunately for the population as a whole, lead pipes become coated with an insoluble salt which prevents the lead from going into solution unless there is a change in the acidity of the water passing through it. In one of our New England cities that has had epidemics of lead poisoning, the water has been found to carry as much as 0.35 milligrams of lead per gallon regularly. When this figure rises to 0.50 milligrams, cases of lead intoxication begin to make their appearance. Our own experiments indicate that with a normal condition of the human system as to acidity or hydrogen ion concentration, over ninety-five per cent. of the lead ingested into the gastro-intestinal tract is eliminated. It is well to emphasize the fact in a study of metallic poisons that the mere presence of the metal in the stool or intestine does not mean that it is in the body. It is the small quantity that is carried in the blood stream which is a hazard to man. Aub found as much as 2.8 milligrams of lead per liter of blood in a case of fatal encephalopathy. In most cases of chronic lead poisoning it would be about a tenth of a milligram or less. As we learn more about the metabolism of calcium in the body and the conditions which affect its absorption, deposition and elimination, we will gain a clearer insight into the lead problem. It has been demonstrated that this metal, when taken into the body, is stored in the bones, where it remains until some change in hydrogen ion concentration causes it to appear in the blood stream and produce varying degrees of lead intoxication. All of this indicates that the proper

treatment for lead intoxication is first to let the lead store itself in the bone, by giving a high calcium diet, and then under carefully controlled conditions, to release it.

Just what constitutes lead intoxication in law is a serious question especially since a medical man may be called into our compensation courts to express his opinion as to whether or not a man is suffering or has suffered toxic poisoning from this metal. A standard definition of lead intoxication would be an important contribution to industrial hygiene. Lead absorption is not lead intoxication and yet these small amounts of lead which are absorbed may cause pathologic conditions in some of the organs. In Germany, where this question has been very carefully studied, a man is not considered to be suffering from lead intoxication unless he shows stippled cells. But this ruling is complicated by the fact that other diseases, as for example malaria, will cause this condition of the blood. As a rule a man is not considered to exhibit deleterious symptoms of lead poisoning according to Lehmann unless he shows above 200 stippled cells per million red cells. There must also be present two or three other symptoms, such as pallor, gastro-intestinal disturbances, colic or lead line on the gums. Even then, a known exposure to lead is an important factor. Paralysis or wrist drop does not always appear, though there are medical men who insist that without this symptom, a man does not suffer from lead poisoning.

The most important problem is not the easily recognized cases of lead intoxication, but those with the indefinite symptoms which we are so likely to dismiss as neurotic, rather than admit our ignorance. These so-called neurotic cases are especially interesting when they appear in the sufferer after he has been pronounced cured and discharged from our hospitals. Every one who has handled lead cases is familiar with them. The causes of death among painters are worthy of note. The first 100 deaths in a large painters' union in Chicago reveal five chief causes: organic heart disease, pulmonary tuberculosis, nephritis, pneumonia and accident at work. The question arises as to what the daily absorption of small amounts of lead does to a man's resistant power to other diseases. Furthermore, is a tolerance for lead created? There is some evidence, from work done upon animals, that there is such a thing as lead tolerance.

An analysis of 18 industries in which the major part of our lead cases appear shows plainly that the precise cause of the incidence in all of them is the inhalation of either dust or fumes. If you eliminate the dust and fumes completely, you will stop lead poisoning in the industries. The whole question of tolerance raises the question of personal idiosyncracies. As we gain a better understanding of the mechanism by which a poison acts and the slight changes in metabolism of the organism that may make it more susceptible at some time than at another we may be able to explain some of these idiosyncracies. We suspect at the present moment that a change in the hydrogen ion of a cell does affect its affinity for this metal. This is indicated by the segregation of lead in certain tissues. It would also offer a possible explanation as to why a person addicted to alcohol is more susceptible to lead poisoning than the employee who does not touch alcohol. This seems to me a better explanation than to say that the workman who drinks is more unclean in his personal habits than the employee who does not drink. I have seen too much of the industry in its early days to be willing to place all of the blame in these cases on a lack of personal cleanliness.

Lead poisoning has come to the front more recently with the introduction of our quick drying paints that must be applied with a gun. The reason for the increase in poison cases is the fact that in cases of interior work, the painting must be done with closed windows and doors, thus increasing the chance of inhaling lead in the spray. Even in exterior painting, the risk is increased.

The question of quick dryers brings up the consideration of the constituents that cause rapid drying and their effects on man. Benzol has been used extensively for this purpose, but now that the danger from this substance is recognized, it is being replaced by such substances as xylol.

Benzol is a colorless liquid, with a comparatively low boiling point, which has rapidly come into commercial use since the war. Its uses in industry can be divided into two distinct groups. The first group comprises that in which it is either being prepared from coal tar or else used in concentrated form, as in the blending of motor oils, or in the extraction of certain chemicals where the very nature of the process requires that the operation be carried on in a closed system for economical, if for no other, reasons. The second group is represented by the use of benzol in the rubber factory, manufacture of artificial leather, sanitary cans, dry cleaning, solvents for paints, and stains in which processes the benzol is usually removed finally by natural evaporation.

The acute cases of poisoning occur in the first group and generally happen where a man has entered a container in which benzol has been stored before the container has been properly ventilated. Death may occur in five minutes or may be delayed several days. Here, as in all cases where the poisoning comes through inhalation, the man doing the greatest amount of exercise, this causing him to breathe deeply, succumbs the quickest. The picture of acute benzol poisoning that presents itself to the medical man is faintness, dizziness, excitation, pallor and later flushing, weakness, headache, breathlessness, apprehension of death, tightness in the chest, visual disturbances, tremor, weakness in extremities, rapid pulse, cyanosis, unconsciousness, collapse,

tremor and convulsions, coma and sudden death due to respiratory paralysis.

Benzol is a narcotic but because of its being a fat solvent, it has a specific action on the nerve tissue causing actual damage to the tissue and also acting as a nerve irritant, accounting for the characteristic spasmodic movements observed. However, its greatest damage in the body is done to the blood cells and the blood forming organs. Lehmann found that 4700 parts per million will produce mental confusion within half an hour and that 6160 p.p.m. will produce definite symptoms of poisoning within a few hours. The Committee on Benzol Poisoning consider that even 100 parts per million constitutes a hazard because of the insidious character of the poison.

As in the case of so many of our industrial poisons, the acute symptoms are readily recognized, while the chronic cases, in their initial stages, are difficult to diagnose. In such cases the onset is insidious and may escape the notice of the examining doctor, who may not be aware of the patient's exposure until he or she is in a serious condition. Santesson, in 1897, reported the first case in literature of chronic benzol poisoning, and this report was shortly followed by others. As in the case of lead, young girls and pregnant mothers are more susceptible than others to benzol poisoning.

Benzol has a powerful destructive action on white cells but also attacks the entire hematopoietic system in general. In examining a case for suspected chronic benzol poisoning, one must look for leucopenia, which increases in severity according to the exposure. In extreme cases the white cells may entirely disappear. If the white count falls below 5500, with a known exposure to benzol, one is justified in classifying it as a suspicious case of chronic benzol poisoning. The red count as a rule is also low, falling in definite cases of benzol intoxication below 3 million. Bleeding of the nose, gums, vagina and bowels should be looked for as well as the development of purplish spots under the skin. Of course there is the usual pallor due to anemia. The patient will complain of loss of appetite, headache, dizziness and loss of weight. Generally in studying the employees exposed to benzol poisoning the earliest symptom noted will be a reduction in white cell count. A low white cell count with a known benzol exposure should be sufficient to indicate to the examiner that the operative should be removed from that type of work at least temporarily and that some better means of ventilation should be recommended to the management.

Autopsy reveals aplastic anemia in all of the blood forming organs with complete aplasia of the bone marrow. Fatty degeneration is found in the liver and kidney, with hemorrhages in the serous and mucous membranes. The Benzol Committee has recommended that no worker showing organic disease of heart, lungs or liver, hemorrhagic tendencies, anemia or unusual blood picture, be employed where exposed to benzol.

Xylol, toluol and hiflash naphtha are powerful narcotics but because of their low volatility and strong odors could never be present in the atmosphere in strong enough concentration to cause trouble. Furthermore unlike benzol they do not destroy nerve tissue or act on the blood forming centers.

Recently two deaths have occurred among industrial workers in Connecticut that offer an interesting study to the doctor and indicate an entirely new industrial hazard. These deaths had been preceded by five deaths, presenting the same pathological picture, in a New Jersey plant. All these workers were employed at one time in painting dials with luminous material. Several years after they left this employment, a pathological condition of the jaw developed. This apparently spread, in spite of the treatment given, finally ending in death. These cases have been reported as radium necrosis because radio-active material was present in the luminous paint used. This paint consisted of very pure zinc sulphide with minute quantities of copper, manganese and cadmium and from 0.7 to 3 and 4 milligrams of radio-active substances according to the grade of work being done. This was given to the girls in one or two gram portions; they mixed the paint with gum arabic and distilled water in a small crucible and then applied the mixture to the dial with a small camel's hair brush.

At the time the first case was referred to me from Connecticut, I had examined practically every girl now working in this industry in this country and had others examined for me in England besides making inquiries in other countries, and had come to the conclusion that the deaths in Orange might have been caused by some bacterial infection especially as all of the girls affected had worked at the same time in the same room. This examination consisted of a blood test, physical examination, x-ray of the jaw and electroscopic test for the presence of radio-active deposits in the body. I was unable to find one case, either in this country or in Europe, except those which appeared in New Jersey. I reported my findings in the *Journal of the American Medical Association,* but before the article was published, the two cases in your state made their appearance. These two cases, appearing thus in another state from the first cases, have caused me to suspect that radio-active material is at the bottom of the trouble even if the mechanism by which it is caused is not altogether clear and not previously suspected. These two girls were not working when I made my survey.

These cases are of special interest to the medical profession, for if this pathological condition is due to the presence of radio-active material in the bone the whole therapy of intravenous injection of radium salts for the treatment of disease is fraught with danger. This is especially true since experiments have indicated that radio-ac-

tive material is finally deposited in the bone, no matter how it is ingested by the body.

Bone necrosis has been known to occur where carcinoma has been treated with radium, especially where glass seeds were used, and the glass was not sufficient to filter out the beta rays. Where platinum or gold seeds were used this condition has not been observed. In these cases radium necrosis may not appear for a period of months or even years, after exposure to radium. Porosity is first noted, gradually developing into complete disintegration and sequestration. In the cases under discussion the bone all through the face gradually became of a cheesy constituence, although those under my observation did not develop a sequestrum.

Our own tests, however, do not indicate any special concentration of the radio-active material in the jaw bone. The girls engaged in dial painting were accustomed to point their brushes in their mouths and in this manner ingested a certain amount of the luminous material. It may be that the beta rays given off by the minute particle of radio-active material as it passed through the mouth was sufficient to have caused lesions. This would be almost inconceivable, if it were not for these cases which have recently presented themselves. This is the only explanation that I am able to advance at this moment if radio-active material is to receive the blame. This appears more reasonable than the suggestion that particles of the material may have become lodged in the jaw itself. The necrotic condition was probably, as in the case of phosphorus necrosis of the jaw, due to a bacterial infection, the radio-active material having lessened the resistance of the tissue to the organism.

Possibly the better way to give you a clear picture would be to describe a case that I had under my observation for seven or eight months.

The patient was sent to me by a dentist who thought that her condition was due to some industrial exposure and needed to be studied. Five years before she had been employed for a period of about a year in a watch factory painting dials with luminous paint. A few months after she left this employment she noticed that her gums were all white, and received treatment for this condition, which, according to her own statement apparently was successful. About 16 or 18 months before she came to see me, her lower front teeth became loose, the gums receding, turning purple in color, and bleeding easily; a little pus could be extracted. She was treated at that time for pyorrhoea alveolaris by injections into the gums and cleaning of the teeth.

Ten weeks previous to her visit to my office the two lower first molars and a first bicuspid had been extracted as they were loose and the bone exposed in the left molar region. Following this extraction a swelling developed over the body and ramus of the left mandible, extending over the face up to the temporal region. The swelling continued and was of moderate size when I first saw her and she could open her mouth only about half a centimeter. The soft tissue in the lower left first molar and second bicuspid region was inflamed and slightly tender. The buccal alveolar plate of the bone was exposed and necrotic. It had a dull, grayish appearance and there was a very moderate discharge of pus. The exposed bone was solid. The second molar was quite loose and was extracted within a few days after our examination. The right side did not present so advanced a pathological condition as the left side, but the tooth socket had not healed. One or two of the teeth were denuded and slightly loose. The condition was diagnosed as necrosis of the mandible.

An x-ray of the jaw showed an area of apparent bone destruction on the left in the region of the bicuspids, which were missing. The area appeared very irregular, but no shadows could be seen suggesting bone sequestra. There was dense shadow anterior to the first molar suggesting calcification. There appeared to be an area of absorption about the roots of the incisors. On the right the mandible appeared rather mottled in density just below the roots of the incisors. There was also a small area of decreased density below the roots of the second molar, which appeared to be a small area of absorption.

There were no other systemic symptoms except pallor, slight weight loss and gradually increasing fatiguability. The patient said that she had had pains in her leg when her trouble first began, but an x-ray did not reveal any bone changes. This complaint is interesting because three cases that have come under my observation have all said that the first symptoms were pains in the leg. It is only recently that I have begun to consider this significant, and even now I am not in a position to take a definite stand one way or the other.

At the time of the patient's admission to the hospital, her blood showed a hemoglobin of 35 per cent., R. B. C. 3,100,000 and W. B. C. 6,100 and a normal differential count, the polymorphonuclears being 64 and the lymphocytes 26. She was given a blood transfusion and two months afterwards her blood condition showed an improvement, as the hemoglobin had risen to 55 and the red count to 3,6. She showed signs of antrum sinusitis and was operated on for this. As a consequence, her blood condition dropped to a hemoglobin of 35 and R. B. C. 1.6. She was given two blood transfusions and a month afterwards the hemoglobin had returned to 52 and the R. B. C. to 3.7. There was no special change in her blood count from this time until her death, about three months later. At that time it showed hemoglobin 50, R. B. C. 4.0 and a white count of 6.000 with a normal differential. I have dwelt on her blood picture because it has always been considered that an undue expose to radio-active material first showed itself in the blood by a low white count. An electroscopic test in this case was made and indicated that her body contained approximately 100 micrograms of radio-active material.

The pathologic findings at autopsy showed a necrosis of the left inferior and superior maxillae with gangrenous infection of all the accessory sinuses and a rather marked secondary anemia with aplastic bone marrow. The other lesions are without special characteristics and may be attributed to the long standing infection.

Emanations from radium act on the hematopoietic system of the body and the intensity of their action depends on the quantity and length of exposure. Certain facts stand out in the blood changes from gamma ray exposures in the work of the Medical Research Council of London: 1. The rapid and profound destruction of lymphocytes; 2. the rapid destruction of red corpuscles under prolonged exposure; 3. the sign of blood destruction and lack of regeneration in the bone marrow. In the case of the leucocytes a pro-

gressive leucopenia occurs, essentially due to a great destruction of lymphocytes.

The number of polymorphonuclear cells is increased for a time, but with a prolonged exposure they also suffer destruction. It has been considered by some investigators that the red cells are more resistant to the effects of radium than the white cells. The London Radium Institute after a study by Mottram came to the conclusion that a consistent white count below 6000 among radium workers should be considered as indicative of an undue exposure and the person removed from the work until the blood condition became normal again. This measure is apparently sufficient unless the exposure has been too long or severe, resulting in a marked leucopenia with white counts below 1000 in fatal cases. Personally, I think that if the blood picture is indicative of an undue radium exposure, the worker should not return to the work again, but should be assigned to other duties.

Radium has never been classed among industrial hazards, probably on account of its high value and the small quantity in existence. That precaution must be taken in handling radium and in its medicinal use has long been recognized. It is estimated that the world's entire production to date falls somewhere between 200 and 220 grams, approximately 100 grams of which are in use in North America. It finds its chief commercial use in the painting of clock and watch dials or similar instruments. Mesothorium has replaced radium in some instances both for commercial and medicinal purposes. The radioactivity of a substance is expressed commercially in terms of radium. When one speaks of one milligram of mesothorium—which is, weight for weight, 250 times more active than radium—one means the amount of mesothorium that will give off the same amount of emanation as one milligram of radium.

There are two main exposures in the industrial production and use of radium.

1. Exposure to the emanation which may result in radioactive deposits in the body; or in external burns when the material is handled in a careless manner.

2. The ingestion of the radioactive material either by the inhalation of the dust, or by the actual swallowing of the material through ignorance or willfulness on the part of the employees.

The first hazard is well understood and the measures for protection known. The emanation is a gas and calls for good ventilation of the premises to prevent any accumulation. Furthermore, all radioactive solutions should be kept under hoods with good draughts. Lead protection screens or thick lead glass should be placed around the measuring apparatus as well as between the workers and the apparatus. There should be a strict rule against the handling of tubes, needles, etc., with the fingers when they are being filled with radium salts. Carelessness in this matter may result in local affections. I have seen cases where long continued exposures of the fingers to radium has produced radium keratosis. This develops a more virulent lesion—possibly a squamous epithelioma. These lesions are apparently of low virulence, as it has been noted in one case where the keratosis had been present for seven or eight years that it did not grow and was not sensitive except when radium was brought in contact with the lesions. X-ray pictures do not reveal any bone changes in these cases.

NOTE: This jaw condition was first noticed by Dr. J. Knef, a dentist in New Jersey. First autopsy made and reported by Dr. Martland, Chief Medical Examiner Essex County, New Jersey. Dr. Cecil Drinker made a survey of the New Jersey Plant.

HERNIA IN EMPLOYEES OF A GRINDING WHEEL FACTORY

BY W. IRVING CLARK, M.D., F.A.C.S.

THE Conference Board of Physicians in Industry has classified industrial hernias occurring in the inguinal region as follows:

"Hernia Degrees:
1st Degree: External ring admits little finger tip; impulse felt.
2nd Degree: External ring admits thumb; protrusion.
3rd Degree: External ring, patulous; bubonocele.
4th Degree: Mass reaches external ring level.
5th Degree: Mass scrotal."

This classification has been used at Norton Company, Worcester, since 1915, and is the classification of all cases cited in this paper. In order to determine the rate of development of hernia in an industry where there is a large amount of heavy work, all herniae rated second degree at the physical examination made when the worker was first employed were reviewed.

Of the 238 workers reëxamined, sixteen, or approximately 6¾%, had developed third-degree herniae without being aware of the fact. The period of time during which these third-degree herniae progressed varied from one to ten years.

From January 1, 1917, to May 19, 1927, there have been sixty-nine cases of industrial hernia recorded by the Safety Engineering Department. In all these cases the hernia was directly connected with the employee's work. In the ma-

jority of cases the work was of a heavy laborious type. The nationality of these workers was as follows:

TABLE 1

Greek	6
Italian	22
Irish	4
Swedish	12
Jewish	2
Russian	1
Lithuanian	1
Armenian	2
Finnish	5
Polish	2
Scotch	1
U. S. A.	11
Total	69

are still in the employ of the company and these have been reëxamined. Three of the thirteen show recurrences and one has developed a hernia on the unoperated side. The rate of recurrence was therefore 23%.

There are working in the company, including those mentioned above, twenty-one men who at some time during their lives have had operations for hernia. Of these six show a recurrence, a rate of 28%.

The average duration of the repair was five and a third years, the longest duration of repair being 15 years, the shortest while the patient was still in the hospital due to a severe post-operative pneumonia. An analysis of the

3

TABLE 2

Nationality	No. of Employes	Percentage
American	810	32.3%
Swedish	700	27.9%
Swedish American	382	15.3%
Italian	163	6.6%
Canadian	144	5.9%
Finnish	72	2.8%
Polish	44	1.8%
Lithuanian	30	1.2%
Irish	30	1.2%
German	26	1.0%
Scotch	25	.9%
English	23	.8%
Russian	15	.5%
Norwegian	12	.4%
Others (Greek, Armenian, Dutch, Danish)	32	1.4%
	2508	100.0%

Divided into northern Europeans and Americans versus southern Europeans, hernias developed in thirty of the south Europeans and in thirty-nine of the north Europeans and of the Americans. It is notable, however, that the number of affected Italians far exceeds the number of any other nationality. A census of the factory made in 1927 shows the proportion of nationalities as per Table 2.

Of this group of sixty-nine, twenty had refused operation, preferring to wear a truss, while forty-nine had elected operative repair.

Of those who were operated upon, thirteen operated hernias appears in the accompanying table.

The total number of men having hernias now in the employ of the company is 107. Of these sixty-two are wearing trusses and doing their regular work without discomfort, thirty are working without trusses, and fifteen are working with post-operative scars holding well.

SUMMARY

In an industry where work is laborious:

1. Six and three-quarters (6¾) per cent. of

the workers with weakness in the inguinal region developed hernia.

2. Occupational hernia was proportionally more frequent among workers of South Europe blood.

3. Operative repair cured approximately three-fourths of those so treated. Over a period of years recurrence occurred in approximately 25% of those previously operated upon.

5

TABLE 3

Name	Age at Op.	Age at Recur.	Duration of Repair	Type of Work	Single or Double	Oblique or Direct
G.L.	49	0	1 month	Heavy	Single	Oblique
S.M.	39	0	1 year	"	"	"
E.L.	52	0	7 months	"	"	"
C.F.	29	0	8 months	Medium	"	"
A.C.	22	0	9½ years	"	"	"
J.D.	40	0	8½ "	"	"	"
A.McL.	36	0	7 "	Heavy	"	Direct
H.H.	23	0	6 "	Heavy	"	Oblique
H.S.	23	0	5½ "	"	"	"
W.N.	30	0	4½ "	"	"	"
M.P.	36	0	2 "	Medium	"	"
C.W.	41	56	15 "	"	Double	Direct
J.A.	36	36	0 "	Light	"	"
A.L.	57	62	5 "	Heavy	"	Oblique
J.N.	21	21	3 months	Mod.	Single	"
J.G.	29	39	10 years	Heavy	Double	Both
M.B.	48	0	3 years	Medium	"	Direct
M.C.	38	0	6 months	Heavy	"	Oblique
A.E.	43	0	2¼ years	Medium	Single	"
A.H.	16	0	14 "	Light	Double	"
O.W.	40	42	2 "	Heavy	Single	"

NOTE: Operations in most cases done at Worcester hospitals by a number of different operators.

QUANTITATIVE STUDY OF ULTRAVIOLET TRANSMITTING GLASSES

BY HERMAN GOODMAN, M.D., AND WILLIAM T. ANDERSON, JR., PH.D.

THE increase in the popularity of "ultraviolet" for the well-being of man and his domestic animals has led, within recent years, to the presentation of substitutes for window glass. The physician is asked directly, and through inquiries by his patients, to advance opinions regarding the efficacy of these substitutes.

During our work with ultraviolet sources we availed ourselves of the opportunity to measure the transmission of a number of glasses and, because of general interest in this subject, it seems that the publication of our results may be justified. Previous studies on ultraviolet transmitting glasses have depended on photographic methods of determining qualitative limits, and estimation of quantitative transmission characteristics. The photographic methods are perfectly reliable for quality, but are very unreliable in quantitative studies unless very great precautions are taken.

The results shown in our present study were obtained by using a series of quartz lenses and prisms so arranged that we could select wave-lengths, or groups of wave-lengths, and make actual quantitative measurements. The light source was a scientific model of the mercury vapor arc in quartz, operated in a vertical position at 3.5 amperes, 80 volts, direct current. The selected energy radiation, preselected in the monochromator, was measured by a sensitive bismuth-silver thermopile of the Hilger type and recorded on a Leeds and Northrup galvanometer. During the study of the quantitative transmission, the intensity of the source was maintained constant. The constancy was checked by means of the bismuth silver thermopile. For measur-

ing the transmission through the glass under consideration, the energy of the desired region of the spectrum was determined with the glass in front of the bismuth silver thermopile, and without the glass. The difference in the readings with and without the glass represented the efficacy of the glass for transmitting that radiation. No correction was made for reflection, so that the values given in the table indicate directly the transmission of incident light.

The ultraviolet, as its name implies, is that region of the spectrum beginning at 3900 Angstrom units contiguous to the visible violet, and extending to the limit of transmission of air, at about 1850 Angstrom units. It is well known that not all the ultraviolet is of value therapeutically or biologically. The zone of ultraviolet which passes readily through window glass has no measurable biologic value in rickets, tetany, activation of food, oils or feeds, and does not cause a sunburn or a sun tan. The spectrum limits of ordinary window glass may be taken as approximately 3200 Angstrom units. The zone from 3900 to 3200 Angstrom units we have for convenience called *Intravital Ultraviolet*. Since the glasses studied were proposed as window glass substitutes, and since the sun which was to act through these window glass substitutes extends only to 2900 Angstrom units at noon in summer, under optimum conditions, it was necessary for us to study the transmission only in this limited zone, which we have called *Vital Ultraviolet*.

In this *Vital Ultraviolet* zone particular biologic activity has been recognized in the radiations from 3100 to 2925 A. U. These were the radiations measured in this study.

The glasses and substitutes investigated were, for the most part, samples supplied by the manufacturers, although at the time these samples were received the present study was not anticipated. Consequently, the samples were not selected samples, and the measurements have been made without the manufacturers' knowledge. Samples of ordinary window glass were obtained by selection at random from a pane of window glass, and are therefore of unknown make.

Each glass was carefully cleaned, polished, and the thickness measured. Qualitative transmission was determined by placing the glass substitute in front of uranium glass. The shortest wave-length of the ultraviolet which would cause this uranium glass to fluoresce was considered to be the lowest qualitative limit of transmission for the glass substitute. A spectrogram taken through these glasses and substitutes would undoubtedly show still lower limits of transmission provided sufficiently long exposures were given.

The preliminary survey indicated immediately that two divisions may be made of the window glass substitutes. The first group includes substances which do not transmit any better than ordinary window glass. The second group of substances permits the passage of the vital ultraviolet and may be further subdivided into a class "A" which transmits a high percentage of these rays, i.e., an efficient ultraviolet transmitter, and a second class "B," a poor transmitter of the vital ultraviolet.

Group "A" of the second class, which permits the passage of the vital ultraviolet, includes transparent fused quartz, which transmits about 87% of the incident radiation (3100-2925 A. U.). Its cost, however, prohibits its use as a window glass substitute. Clear Corex transmits about 70% of this zone. Corex is not quite clear at a thickness of 4 mm. This glass is relatively inexpensive, but unfortunately is not at present commercially available except for experimental applications.

We have shown that there are a number of window glass substitutes which have an efficient transmission in the shorter ultraviolet of sunlight. In order to arrive at an estimate of the value of these glasses it is essential that the character of the ultraviolet from sunlight itself be referred to. Accurate quantitative measurements of solar ultraviolet radiations for different parts of the world, for different seasons of the year and for various times of day are not available. The most reliable determinations have been made by Dorno at Davos, Switzerland, and by Fabry & Busson at Marseilles.

Dorno's measurements were made in the Swiss Alps, where the atmosphere is exceptionally free from dust and smoke. Because of this and the higher altitude his measurements indicate a greater quantity of ultraviolet than would be found near sea level and in a smoky manufacturing city. The shortest wave-length registered by him is about 2900 A. U., at about noon during the month of July. During the winter, in December, the shortest wave-length available was about 3080 A. U. It can be seen, therefore, that even under these ideal conditions there is considerable variation in the quality of sunlight with the season of year.

The quantity of ultraviolet received from the sun also varies greatly with season and time of day. Dorno found that there was about 800 times more ultraviolet from the sun on a clear day in July than on a corresponding day in January. That there is great variation is familiar to all who have witnessed the great difference in the sunburning power of the sun in summer and winter. The prevalence of rickets during the winter months is also evidence of the deficiency of the shorter rays in winter sunlight. Indeed, measurements made in the industrial section of Newark, where the atmosphere is polluted with smoke and dust, have demonstrated that even during the summer months on a clear day there is almost a total absence of this short "vital" ultraviolet. This means that in many manufacturing cities sunlight is largely devoid of health-giving rays even during the summer months. Rainy and cloudy days further deplete the amount of ultraviolet received from the sun.

If the measurements by Dorno and Fabry &

Buisson, together with the experience with rickets, are reliable, it becomes evident that during the winter months very little of the health-giving rays can find ingress into a room through an open window even when the sunlight is direct. Very many windows, moreover, face the north and therefore receive no direct sunshine. Likewise, in congested districts where there are many large buildings crowded together even windows of southern and western exposure must receive their light not directly but by reflection from the walls of other buildings. Construction materials such as stone, brick, concrete and paints are poor reflectors for the short ultraviolet. Consequently these windows receive a negligible quantity of the health-giving rays. It may be seen that during the winter months, under the most favorable conditions, very little of the health-giving ultraviolet of the sun can enter through an open window. When the window is protected by a glass substitute, the amount of vital ultraviolet entering is still further decreased by the lowered transmission of the glass. Whether by using such a glass substitute sufficient ultraviolet can be introduced to a room during the winter months to be of value as an aid to health, is, in view of the present evidence, very doubtful.

In conclusion we would like to point out that a number of excellent window glass substitutes for transmitting the short ultraviolet rays of the sunlight are now available. We have discussed briefly the available data on the ultraviolet of sunlight, referring primarily to its variability in quality and quantity with time of year and weather conditions. We know of no evidence that has been advanced to substantiate claims that health would be improved by using such glass substitutes, and until carefully controlled experiments have demonstrated their value, their employment as an aid to health should be advocated with reservations.

TABLE I

WINDOW GLASS SUBSTITUTES

No.	Name of Glass	MM thick	Qualitative Limits	% Transmission 3100-2925 A.U. incident light	Class
1	Window glass (unknown make)	3	3130	0.0	I
2	"Quartz Lite"	2	3130	0.0	I
3	Fused Quartz	2	2300	87.0	II A
4	Corex (Clear)	4	2300	69.6	II A
5	Vioray	2.5	2800	56.2	II A
6	Vitaglass (Plane)	2	2650	48.7	II A
7	Vitaglass (Cathedral)	3.9	2800	42.2	II A
8	Celloglass (special)		2480	36.1	II B
9	Celloglass (wide mesh)		2800	31.1	II B
10	Celloglass (modern)		2900	21.1	II B
11	Pyrex	1.8	2967	11.1	II B
12	Celloglass (double)		2900	8.3	II B

I:—No measurable transmission.
II A:—Efficient transmission.
II B:—Poor transmission.

AN INSTRUMENT TO FACILITATE THE OPERATION OF TONSILLECTOMY

BY LOUIS ARKIN, M.D.

HAVING found the instrument which is outlined in this article convenient for work in the dissection method for a tonsillectomy, I desire to present it to the Medical Profession.

It is a compact instrument consisting of three parts, each part used for its respective duty in the dissection of the tonsil, after which the tonsil is snared off.

The first part consists of a knife-edged projection for the initial incision. Figure 1.

The second part consists of a double-edged knife with a right angle at each edge, used for the separation of the pillars from its attachment to the tonsil. Figure 2.

The third part, by the return of the two previous parts to their normal positions, consists of a dissector for the continued dissection of the tonsil. Figure 3.

These separate parts are easily removable and are therefore easily cleaned.

FIGURE 1

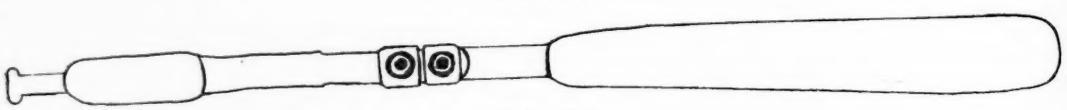

FIGURE 2

FIGURE 3

This instrument has the advantage of having three instruments in one, each workable from the same end. Figure 3.

Each part of the instrument is easily placed in position with thumb or forefinger, for each step of the operation.

This combination saves the need of three separate instruments and has all these three instruments in one.

Case Records
of the
Massachusetts General Hospital

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICO-PATHOLOGICAL EXERCISES

EDITED BY R. C. CABOT, M.D.

F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 13541

A CASE WITH ANASARCA, CYANOSIS, SYMMETRICAL DERMATITIS, DIARRHEA, MASS IN THE ABDOMEN AND PSYCHOSIS

MEDICAL DEPARTMENT

An English actress forty-three years old entered the hospital July 8 for study of transient attacks of edema, periods of sweating, recurrent redness of the backs of the hands, diarrhea, leucorrhea, progressive weakness, loss of weight and more recently sore mouth and hemorrhoids. Her mind was undoubtedly affected; at times she talked nonsense, but at others seemed sufficiently clear so that her story was thought probably reliable.

All her life she had been subject to attacks of gnawing pain in the upper abdomen, sometimes agonizing torture. The attacks occurred once or twice a year and were more or less constant for days. They became more frequent as she grew older. They were somewhat relieved by urination or defecation and were not related to meals. As a child she had vomiting with the pain. This she outgrew. There was no other gastro-intestinal symptomatology. Three and a half years before admission she left the stage largely because these attacks had become more frequent, partly because of the effects of marital troubles ending two years before that time in her leaving her husband and child in Australia and coming to this country. She considered her illness a "nervous breakdown." Just what happened during the first two years and a half after she left the stage could not be ascertained. A year before admission she entered a New York hospital because of abdominal pain. A report from this hospital states that she made a stay of eleven days. X-ray was negative for gall-bladder pathology. Blood: 13,000 leukocytes, 78 per cent. polynuclears, hemoglobin 75 per cent., reds 3,700,000. Wassermann negative. Urea nitrogen 17.3. Bile index 7.5. She was discharged improved, with a diagnosis of psychoneurosis. After leaving the hospital she rested for seven weeks out of town, then returned to New York for three weeks, where she had much relief from a diet of spinach and beefsteak. She did not keep this up, however. Then followed eight months of rest in the country. Within a month or two after her discharge the pain disappeared and most of her chief complaints presented. The edema was "all over the body," and included the arms, ankles and face. The abdomen was enlarged. The edema was accompanied by hyperesthesia and a feeling of stiffness in the tissues. It was aggravated by salt, sugar and a clear sky. She had never liked salt and had eaten none for a year. Bowel movements gave relief. The attacks lasted from a few days to two weeks. She had drenching sweats five or six times every night for a week or two, with remissions of varying periods. For a year she had had four to six small loose, watery movements of the bowels every twenty-four hours and occasionally some tenesmus. She had occasional constipation now when the edema became worse. The stools contained undigested food. There was a profuse foul brownish yellow bloodless vaginal discharge relieved by douches. The backs of her hands showed circumscribed areas of redness that came and went at intervals of a week or so leaving the skin normal in appearance. These often accompanied aggravated edema. The skin on both external ankle joints was rough and dry. Her skin was very sensitive to the American sun. None of these lesions, however, were related to sun or seasons. During the two months before she entered the Massachusetts General Hospital she had been growing weak and had lost weight. Four weeks before admission she set out on a motor trip with a friend. For three weeks she had had hemorrhoids which came out, were very painful, and at times bled. She had also had sore mouth, very sensitive to acids and hot foods. She entered the hospital for treatment of the hemorrhoids and by the influence of her friend, who realized that she was generally ill. She showed very definite mental change. She did not remember how she came to this hospital, or even know what hospital or what city she was in.

There is no history of familial disease.

She had always been strong and well. Her past history shows nothing of interest except the recurrent attacks of abdominal pain and fullness mentioned above. She had one abortion before the birth of her only child.

Clinical examination showed a well nourished woman lying flat in bed with general anasarca and cutaneous hyperesthesia. Edema more marked in the dependent parts of the body. Face puffy and cyanotic, with deep purplish red discoloration over the cheeks and between the eyebrows. Eyes watery. A small grayish fatty mass over the lateral portion of the conjunctiva of each eye. Eyelids puffy. Lips deeply cyanotic. Mucous membranes much reddened. Tongue red and raw in appearance, with several small ulcers under its anterior end. Ulceration behind the last molars. Pharynx and tonsils much reddened. Enlarged submaxillary

glands. Chest examination on admission incomplete on account of edema and pain. Expansion at bases much limited. A few medium crepitant râles at the bases behind. Many nodules in both breasts, not attached to the skin or chest wall, not tender. A few also in the left axilla. Apex impulse of the heart not seen or felt. Left border of percussion 11 centimeters to the left, 3.5 centimeters outside the midclavicular line, right border 4 centimeters, supracardiac dullness 7 centimeters. Sounds and action normal. Mitral first sound very loud. Pulmonic second sound accentuated. A mitral presystolic (?) murmur, a rough systolic and a soft middiastolic (?), the systolic being widely transmitted. A loud systolic murmur over the pulmonic area. No thrill. The same murmurs were heard over the aortic area with less intensity. The artery walls could not be palpated because of edema. Blood pressure not recorded until the day before death; then 90/68. An electrocardiogram showed sino-auricular tachycardia, rate 120, flat T_1 and T_2, rather small complexes. Abdomen much distended from ascites. A hard irregular mass in the epigastrium moving slightly with respiration, probably part of the liver and not of the stomach. Other organs not felt. Pelvic examination showed much leucorrhea. Vulva inflamed. Cervix lacerated. Fundus not felt. A bleeding external hemorrhoidal rosette. Backs of both hands showed dusky red coloration stopping a little above the wrists with sharp demarcation. A crusty pustular patch over the back of each hand, more marked on the right; others over the insteps. Knee-jerks very active. Other reflexes not tested because of pain. Pupils small, somewhat irregular, with sluggish reactions to light, normal accomodation.

Amount of urine normal, specific gravity 1.019 to 1.028, cloudy at three of six examinations, the very slightest possible trace to the slightest possible trace of albumin at three, leukocytes at four, loaded with leukocytes once, red cells at three. Blood: leukocytes 25,700 to 12,300, polynuclears 78 per cent., hemoglobin 85 to 70 per cent., reds 6,600,000 to 4,700,000, smear normal. One Wassermann weakly positive, one negative. Non-protein nitrogen 42 milligrams. Uric acid 3.92. Creatinin 1.64. Sugar 117. Chloride 634.7. Calcium 8.4. Phosphorus 4.5. Total serum protein 6.09 per cent. Stool, guaiac negative.

Two portable X-rays of the chest were unsatisfactory because of motion and rotation. No definite enlargement of the mediastinal shadow could be seen.

Temperature 97.2° to 102.4°, with a terminal rise to 106.4°. Pulse 90 to 124. Respirations normal until July 18, afterwards 24 to 52.

The patient could be fed only by tube and failed rapidly. The edema of the body increased. The mass in the epigastrium moved a little with respiration. It was thought to be liver, and probably from its nodular feel malignant.

July 12 the patient lapsed into a semistupor. Fluid issued from punctures of the skin in jets. She was put on a diet of liver and oyster purée, orange juice, eggs and yeast. July 13 and 14 she was very bright.

July 15 a heart consultant found in addition to the murmurs described a suggestion of prominence in the region of the pulmonary artery. There also seemed to him to be a short rough diastolic murmur in the pulmonic area. He thought digitalization possibly worth a trial. Digitalis was given.

The right arm and hand continued to be very edematous after the edema of the other limbs was practically gone. July 16 pustules developed over the right wrist. These were emptied. There was no evidence of lymphadenitis. The lesion on the left hand was more marked. The ascites was less. The patient had delusions. July 17 her face was somewhat more puffy. Hot soaks were started on the right hand. There was a loud rough systolic murmur, best heard near the sternal border in the left fourth interspace. The aortic second sound was very feeble. There was no thrill. No diastolic could be made out. July 18 the upper arm was again swollen. Many vesicles had formed over the lesion of the hand, which had again become conspicuous. The patient was very irrational and noisy, with delusions of a poisoning plot, of operation on her ovaries, etc. She was quieted with morphia. Rectal injections of glucose solution were given. July 19 the edema was again generalized. She was still very irrational and noisy. During the next two days she was brighter. There was much sloughing of the skin of the hands. The temperature fluctuated irregularly between 99° and 102°, rectal, with corresponding respiratory acceleration but little change of the pulse rate.

July 21 abdominal paracentesis was done, with withdrawal of 2,000 cubic centimeters of opaque yellow fluid, specific gravity 1.010, 710 red cells and 1.010 leukocytes per cubic millimeter, 89 per cent. polynuclears, 9 per cent. lymphocytes, 2 per cent. large mononuclears, no organisms, total protein 2.64 milligrams, non-protein nitrogen 20, sugar 74, cholesterol 45, no fat droplets, culture no growth.

July 21 the patient's sister gave some additional history. From her childhood the patient had been a poor sleeper and an abnormal eater, with a distaste for meat, which she never ate unless forced to. She also disliked shellfish and was very fastidious about other fish. She was very fond of all sorts of sweets and ate a great deal of them, also of bread. Butter, vegetables and fruit she ate in normal amounts. She had always had tremendous vitality and energy. She was practically a total abstainer from alcohol, and had lived an absolutely clean life according to her sister. Her attacks of

abdominal pain dated from a fall on her stomach at the age of three. These attacks occurred four times a year with steady pain which doubled her up for a week, then suddenly stopped. There was marked anorexia. At fourteen the attacks came twice a year and lasted twice as long. When she went to Australia they stopped for three years, returning when she became pregnant. Her father, who was an Italian and died of Bright's disease, had had eating habits similar to hers.

July 24 the chest was clear except for a few crackling râles at the bases. A blowing systolic murmur was heard over the right interscapular region. The heart condition was unchanged. The abdomen was much distended. Rectal examination showed the external sphincter of almost cicatricial type, the tightness being apparently not due to muscular spasm. The rectum was much dilated from gas. No solid material could be found. On withdrawal of the finger a gush of watery grayish brown stool issued. There was a bed sore over the sacral region, in fair condition. There was still much edema over the limbs and the lower half of the trunk. The fundi were normal.

July 27 there was still much distention in spite of pituitrin and rectal intubation. The right arm and hand still showed the most edema. That day she was much brighter than during the past few days. July 29 her condition was poor. The necrosis of the skin extended to the palms. Much dead skin was removed. The dorsum of each foot showed a small lesion similar to those on the hands. The oral mucous membrane was in about the same condition as at admission. The vulvar and anal regions were much better in appearance, but there was much more breaking down of the skin over the sacral region and marked edema of the whole back and the arms, very little of the legs. With the recession of the edema emaciation was more evident. Occasional twitching of the right corner of the mouth was observed. There were some tracheal râles. The diarrhea was less. She rested quite well at night with morphia. The heart, lungs and distention were unchanged. July 31 she died.

Discussion

BY JAMES H. MEANS, M.D.

NOTES ON THE HISTORY

The account of her mental condition is about correct, because she did have periods of mental clearness alternating with those of mental confusion.

This is all the report I ever got from the hospital in New York. It is certainly unsatisfactory. It gives a few negative laboratory findings, a positive one of mild anemia, and a diagnosis of psychoneurosis.

She laid a great deal of stress on the effect of sunlight on her swelling, and said that she could not possibly stand it, that it made her swelling worse.

The statement about salt was hers. She was quite sure that it made her worse. But she had never liked salt, and had taken none for about a year.

She said a great deal about the American sun; being accustomed to the British sun she found the American sun too strong. The edema was related to the sun, but the inflammation of the skin apparently was not.

The history of course is very confused, but it really was extremely difficult to get a story from this woman. She had lucid intervals and tried to be coöperative, and told the story given here bit by bit. Then there were times when she was completely unresponsive. The friend who got her into the hospital had known her for several months, but could not help us very much. A sister in England was sent for, because we thought the patient was very sick. She came over and gave us a little additional history.

Perhaps the outstanding things are these: recurring attacks of abdominal pain. They seemed to be quite severe and went back into childhood. The sister told us later that they had come on after an injury to the abdomen during her early childhood. Then there seemed to be what was called a "nervous breakdown" a year ago, and we have the fact that she went through an apparently complete study in a good hospital in New York where they were able to make no diagnosis other than psychoneurosis. That negative evidence is important in relation to our positive findings. Then this story of recurring edema and swelling of the abdomen had apparently been present only for the past year. She would have this swelling and then it would disappear, and more or less, though not completely associated with it, this recurring soreness of the skin of her hands. Then we have a story of sore mouth, of leucorrhea, and a story suggestive of progressive disease in loss of weight and strength and really the development of what amounted to a cachectic state.

I think it is worth noting that she got relief a year ago from a diet of spinach and beefsteak. That is very likely correct. She did not keep up that diet.

NOTES ON THE PHYSICAL EXAMINATION

Her flesh was very tender. She complained bitterly when we attempted to see whether there was any pitting edema. Percussion gave rise to pain.

The ascites was quite adequate, I think, to explain the findings in the chest.

The nodules in the breast were quite small and were chiefly around the nipples, as I remember.

The coloration on the hands was absolutely symmetrical,—a glove-like dermatitis.

There was quite a variation in red cell count.

DIFFERENTIAL DIAGNOSIS

There are a number of outstanding features. In the first place, a woman evidently very ill, out of her mind at times, quite lucid at others, with a very marked cyanosis and also with this purplish discoloration over her face, with a very extraordinary skin condition in her hands and to a less extent in her feet, and with a general anasarca. Then we have certain findings in the heart. It is enlarged. There are murmurs present which we at first took to be those of organic mitral disease. We thought the heart lesion might have something to do with the cyanosis. We did not see how it could account for the general anasarca. Then we have also a hard nodular liver and we have certain nodules in the breast, and that provided us with food for thought.

It seemed impossible, in view of the combination of a definite psychosis, the very striking symmetrical dermatitis, the diarrhea, the stomatitis and the vulvitis, to escape the diagnosis of pellagra, and that was accordingly made at once. Various men saw her in consultation, and I think everyone agreed that she had pellagra. But that did not seem to be the whole story. It did not seem adequate to explain the general anasarca, according to our lights, and we wondered whether we might be dealing with a more complicated type of deficiency syndrome than pellagra, and inasmuch as this woman did have ascites, generalized edema and quite a marked hyperesthesia, it was suggested that perhaps she was suffering from a lack of the antineuritic vitamin too. None of us had seen any beriberi, so it was simply a wild thought. It did not seem to us that there was any adequate cardiac or renal cause for the edema. The urinary findings are not adequate to make a diagnosis of nephritis, and there is no evidence of nitrogen retention. So we did not believe there was any adequate renal explanation for this strange anasarca.

Furthermore, we had this nodular liver, which quite apart from all the rest of the picture seemed to us to be almost certainly cancer. We thought it was a type of liver which could hardly be anything else. So that we were obliged to make several diagnoses. (1) Pellagra. (2) Probable cancer of the liver. (3) Organic heart disease, which at first we thought to be ordinary mitral disease, but which a cardiologist later thought was more likely to be a congenital lesion.

We wondered why she should have pellagra. She had never been, so far as I know, in a region where pellagra is very prevalent, although perhaps Dr. Shattuck will tell us it is not so rare in Massachusetts. She would not admit that her diet had been peculiar in any respect, but her sister later stated that it definitely had been. She had not been accustomed to take alcohol; she had taken practically none.

The dietitian found that oysters contained a large amount of the antineuritic vitamin, and we thought it would be well to get in not only a liberal supply of animal protein but also of the antineuritic vitamin. It was also easy to administer by tube.

There really was no evidence of congestive heart failure unless the edema was cardiac, and we all felt nearly certain that it was not. Nevertheless we gave her digitalis, but it did not seem productive of much result. She got steadily worse.

The abdominal tap gave a low gravity fluid. The total protein is a third that of the blood; the non-protein nitrogen is lower than that of the blood. It was apparently a pseudochylous ascites, and the gravity of the fluid would indicate that it was a transudate.

The sister was very definite that these attacks of pain underwent this curious change at the age of fourteen, for no reason that could be discovered.

DIFFERENTIAL DIAGNOSIS

We were not able to go much further with the diagnosis than I have already outlined. We thought that she had pellagra, that she probably had cancer of the liver, and some sort of heart lesion.

One suggestion was made which I ought to speak about. Dr. Wolbach was asked to see this patient because we knew he was interested in deficiency diseases and we thought we might have a rather complicated one here. He wrote: "Pellagra without question. I suggest the possibility of abdominal tumor (gastric origin) with mediastinal metastases to explain the edema,—a guess, but within my experience."

Dr. Wolbach told me that he thought a small metastatic tumor obstructing the thoracic duct might account for all the edema. None of us had thought of that.

Dr. Greenwood thought the skin quite typical of pellagra. Dr. E. L. Oliver saw her and said: "This case is undoubtedly pellagra." So that we have two dermatological opinions about it. "This diagnosis explains every symptom except the abdominal mass." He thought, apparently, it took care of the edema, which we had not known it could do.

The question came up, why did this woman have pellagra, and was there any relation between the pellagra and the cancer? Pellagra I think is generally conceded to be a deficiency disease of some sort. Goldberger's work seemed to prove that. It may ordinarily be due to a deficiency of a certain type of protein or other substance in food, but it is conceivable that it might come about through some intrinsic cause, some difficulty in assimilation. I think Dr. Shattuck will tell us that when it does occur in regions such as Boston and northern regions, it is very apt to occur in alcoholics. This particular woman proved to be not an alcoholic. It has been reported in connection with cancer.

I have a paper* by Dr. William L. Bender of San Francisco, in the *Journal of the American Medical Assn.*, April, 1925, in which he reports three cases of pellagra in patients who had not been in tropical regions at all. In the first case pellagra came on in an individual with a gastric ulcer, in whom they did an unusual thing. They decided that the ulcer required surgical treatment, but on getting in found the ulceration so extensive that they could not do an enterostomy, but did a jejunostomy. They fed the patient through this opening, and in the course of time the patient developed pellagra. Then they closed this opening, did a gastroenterostomy, and the pellagra disappeared.

The second case was a case of pellagra secondary to carcinoma of the stomach with pyloric obstruction. There was transient improvement after gastroenterostomy. The patient died later without a necropsy.

The third case he describes as pellagra secondary to cancer of the stomach, also with pyloric obstruction. Death followed the operation, and they got no necropsy. So there is one paper, and I dare say there are others, in which pellagra occurs in connection with malignant disease, and I wonder whether therefore our patient's may be an intrinsic pellagra. Dr. George Minot has shown that pernicious anemia is probably a deficiency disease. We think of it as a primary disease, but it may also be a symptom. It may be a symptom of sprue. We have a patient now who has a blood picture of pernicious anemia but a past history typical of sprue. In other words there may be various reasons why the necessary substance is prevented from getting into the body, it may be because of cancer or it may be, as in sprue, because of inflammation or atrophy in the gastro-intestinal tract. So perhaps we should look at pernicious anemia as a symptom and on pellagra as a symptom, just as we look on hemorrhagic purpura as a symptom. We see this last turning up in anything which puts the bone marrow extensively out of business. We see it in leukemia or in benzol poisoning, and of course also often as an idiopathic disease. So that perhaps many of the things we are inclined to call diseases are really symptoms, and we are wondering therefore whether this pellagra may not really be a symptom of the cancer of the stomach. She may have been, so to speak, a potential pellagrine; then when she gets a cancer of the stomach in addition it precipitates things and we get a full-blown pellagra.

Dr. George C. Shattuck: Our views in regard to pellagra have been rapidly changing in recent years, and the diagnosis is being made more and more often. Pellagra was made a reportable disease in 1914 in Massachusetts. Since then the evidence is accumulating that it is a fairly common disease here speaking relatively. Some years ago I looked up records of hospitals, including insane asylums and poorhouses, and traced 132 cases of which 126 were residents of Massachusetts*. The records of this hospital and of the Danvers Insane Asylum showed 28 cases for each.

With regard to the relation of pellagra to malignant disease, I saw one case at the Boston City Hospital and went over the hospital records of 500 cases of cancer of the stomach at the Huntington Memorial Hospital, finding among them one probable case of pellagra†. A number of other cases of malignant disease associated with pellagra have since been reported. It seems logical to believe that if pellagra is a deficiency disease one might expect to find it associated with diseases which interfere with nutrition. The disease occurs rarely associated with pulmonary tuberculosis. Whether there is any causal relation or whether it is accidental, I do not know. Of course the tuberculous patient is generally well fed, so that one would not expect to find pellagra often among them.

The question of beriberi is, I think, another very interesting point which Dr. Means brought out. If pellagra is in the main due, as Dr. Goldberger believes, to deficiency of vitamins, why should we not get beriberi associated with it? If the association does occur it is rare here, but I think it is possible that they may occasionally occur together. That question was raised in a case here by Dr. Sellards some years ago. The original diagnosis was Korsakoff's disease. This case had the picture of confusional insanity and polyneuritis believed to have developed on an alcoholic basis. There were also skin lesions suggestive of pellagra but not characteristic, and in the absence of characteristic skin lesions in this case a positive diagnosis of pellagra was not made.

Polyneuritis is seldom associated with clear evidence of pellagra, and when it does occur we are in doubt as to the significance of this symptom. Of course we have no means of differentiating it when we see it from alcoholic neuritis. The only unusual feature of beriberi neuritis is the acute cardiac disease often developing with it. Speaking generally we cannot distinguish one toxic neuritis from another by the physical signs except in the most typical cases where lead or arsenic enter. Alcoholic neuritis has no special features. And if so, how are we going to diagnose beriberi—that is to say in places where it is not common? The history may help, but it is an uncertain guide.

Dr. Cabot: Has anybody ever surmised that edema is in itself a symptom of pellagra?

Dr. Shattuck: I think not. I have never heard that.

Dr. Cabot: How about lesions on the feet? Are they common?

*Jour. A. M. A., Vol. 84, page 1250.

*Pellagra in Massachusetts. Boston M. & S. J., Vol. 188, No. 4, page 110, Jan., 1923.

†Factors apparently influencing the development of pellagra in Massachusetts. Boston M. & S. J., Vol. 188, No. 23, page 889, June, 1923.

DR. SHATTUCK: Yes, skin lesions on the back of the feet are pretty common. Lesions on the hand are more common, and genital lesions are not uncommon. I think that the vaginal lesion in this case may have been due to the pellagra. The other more or less characteristic skin lesions are apparently not present in this case. There may be a necklace pigmentation and oftentimes there is roughness of the elbows and of the knees. The face, too, is apt to show a symmetrical erythema.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Pellagra.
Abdominal neoplasm.
Generalized anasarca.
Rheumatic heart.
Congenital heart?
Adenofibromata of breasts.

ANATOMIC DIAGNOSES

1. *Primary fatal lesions.*

Carcinoma of ileum.
Metastases to breasts, liver, ovaries and thoracic duct.
Pellagra.

2. *Secondary or terminal lesions.*

Congenital heart disease, pulmonary stenosis.
Chronic passive congestion of liver.
Ascites.

DR. TRACY B. MALLORY: The skin lesions were of course observed at necropsy, but they have been so well described in the clinical record that I won't repeat that.

DR. MEANS: They underwent a certain amount of change, as I remember it.

DR. MALLORY: Yes, the surface ulcerated off and left a sloughing area.

DR. MEANS: I mean after death they lost the angry appearance that they had during life.

DR. MALLORY: There was malignancy present in the case, but not in any expected area. The numerous little nodules felt in the breasts, which had quite reasonably been supposed to be cysts or small adenomas, all turned out to be cancer, individual foci scattered in numbers throughout both breasts and not connected with each other. I have never heard of primary cancer in the breast showing as many multiple foci as that. I think we can rule out that possibility and must accept the cancer in the breast as metastatic. There was also cancer in the right ovary, a small area, and so far as histological appearance is concerned apparently young. The third area was in the small intestine about two centimeters from the ileocecal valve,—a most unusual place for carcinoma. There was a small disc-like growth about halfway between a nickel and a quarter in size which on microscopic examination showed an extremely dense fibrous adenocarcinoma. The lesions in the breast and ovary were also adenocarcinoma, but of much more rapid growth. So that the probability is strong that the cancer was primary in the small intestine and the lesions in the breasts and ovary were metastatic. There were, of course, large metastases in the liver to explain its size and nodular character. Another metastasis of considerable interest was found in the thoracic duct, thereby, I think, partly explaining the ascites and the edema.

I might remark that at post-mortem the edema of the upper extremities was very much more marked than of the lower.

The heart was interesting. It was rather small, weighing 260 grams, and showed a good deal of brown atrophy. The valves were all negative except for the pulmonic valve, which was only a little over four centimeters in diameter, the cusps all perfectly formed but very small,—an evident congenital stenosis of the pulmonic valve. I think there is very little doubt that that explains the marked cyanosis in the case.

The lungs showed marked edema.

The small intestine was negative except for the small carcinoma mentioned. The cecum showed many minute ulcerations of the mucosa. The kidneys and internal genital organs were negative except for the metastasis in one ovary.

DR. MEANS: The stomach was absolutely normal, was it not?

DR. MALLORY: Yes.

DR. CABOT: Would this intestinal nodule seem to supply the conditions for malnutrition, malabsorption, that you had in mind?

DR. MEANS: We did not make a diagnosis of anything more than cancer of the liver. We did not know where it was primary. We suspected the stomach. I meant to bring that out in discussion. We thought perhaps we did have extensive cancer of the stomach and metastasis in the liver, but that was not the case at all. Perhaps this intestinal lesion is the cause of the pellagra, or perhaps the cancer and the pellagra have no connection. But I hate to give up the idea that the cancer was somehow responsible for the pellagra.

DR. SHATTUCK: There has been some interesting work on the pathology of pellagra by Denton.* He studied sixteen cases in Panama. Of those he selected twelve cases and threw out four, one case complicated by tuberculosis and others for other reasons, the desire being to get typical material. He describes what he considers fairly characteristic changes in the skin, in the esophagus, and in the colon. The changes in the skin go through a development with a series of stages which it is rather difficult for me to describe. The changes in the esophagus are associated with redness, more or less ulceration, and chronic inflammatory exudates. In the colon there is also more or less evidence of chronic superficial inflammation and many minute abscesses that can just be seen with the naked eye.

*Denton, J., Pathology of pellagra. Am. J. Trop. Med., Vol. 5, page 173, March, 1925.

Denton's is by far the most detailed and careful work that has been done, I think, on the pathology of pellagra. He worked on very fresh material. The changes in the cord have been described by various people, but there is nothing very characteristic about them.

DR. CABOT: Are esophageal lesions rather suspect on account of possible post-mortem changes?

DR. MALLORY: That is true to some extent if the necropsy is not fresh.

DR. MEANS: How do you account for the edema of the upper extremities?

DR. MALLORY: The obstruction of the thoracic duct is all that we have.

DR. MEANS: That takes care of the trunk and the left arm. The right arm and the neck and head are supplied by the right duct, are they not? I think the lesion found could account only for the edema of the lower extremities and ascites and possibly the left arm.

DR. GEORGE W. HOLMES: There are only two interesting things in the X-ray. The first is the general haziness throughout the bases, which is quite characteristic of edema, and the other is the absence of enlargement of the supracardiac shadow to the left. One clinician thought that he got dullness there and that the patient had a dilated pulmonary artery which would go with the patent ductus arteriosus. These plates I think rule that out. There is nothing to suggest a congenital lesion. I have never seen a case of pulmonary stenosis proven before, and so far as I can see this X-ray gives no indication of it whatever. Patent ductus arteriosus gives a characteristic picture.

CASE 13542

WAS THE PATIENT MISINFORMED?

SURGICAL DEPARTMENT

An unmarried American Jewess twenty-one years old entered the Emergency Ward January 30.

No familial history or past history was obtained.

She was in good health until two years before admission. Then she was seized with fairly severe right lower quadrant pain and vomiting which persisted for a day and a night. The following day she was taken to a hospital, where she said an appendix abscess was drained and the appendix removed. She made a good convalescence and was discharged in three weeks. From that time until seven months before admission she felt perfectly well. Then she had a recurrence of pain and vomiting like that preceding the operation. The attack lasted two days and was relieved by morphia. Two months later she had a second similar attack lasting for the same length of time and relieved in the same way. The night before admission at half past seven she had a recurrence of the old type of pain in the right lower quadrant. About midnight she vomited. At two o'clock in the morning the pain became so severe that she called a physician, who gave an enema with good result and a quarter grain of morphia. She vomited twice before going to sleep. She awoke in the morning with the pain still present. She thought she had had no temperature.

Clinical examination showed a fairly healthy appearing girl lying uneasily and complaining of rather severe pain in the right lower quadrant. The heart was normal except for a marked splitting of the second sound at the second left interspace. The lungs were normal. The abdomen was negative except for the scar of an old McBurney incision. Below the scar there was localized tenderness which caused her to wince on pressure. On vaginal examination one finger was admitted. The cervix was nulliparous. The left vault was negative. In the right vault there was marked tenderness. No mass could be made out.

Before operation urine negative, leucocytes 26,000, temperature, pulse and respirations not recorded.

She was operated upon at once. For the next two days the temperature was 100.5° to 98°. There was profuse discharge of pus, not foul. By February 3 there was almost no drainage and the temperature was normal. A blood Wassermann was strongly positive. She continued to make an uneventful convalescence and February 9 was discharged.

DISCUSSION

BY A. WILLIAM REGGIO, M.D.

The story is short but quite clear. The patient apparently had the same kind of pain she had had before, but her appendix had been taken out. We know that if in removing an appendix we leave even a quarter of an inch of stump tied off we can get an acute gangrenous appendicitis in that little stump. That is quite possible. Also she might be having a residual abscess. She was drained two years ago. It is rather late. I think it would be rather unusual to have a residual abscess flare up as late as this.

We ought also to consider the possibility of an ovarian cyst or salpingitis. Ovarian cyst is very unlikely. An ovarian cyst which gave as much trouble and pain as this would probably have a twist in the pedicle and it would not let up so quickly. It would keep right on. There is no menstrual history of any kind, so the man who examined her had no suspicions of anything pelvic. Everything is referred to the right lower quadrant. The white count indicates an acute infectious process. If there had been a question of salpingitis there would have been some remark about vaginal discharge, besides which if

we have as acute a reaction as this from a salpingitis it would be bilateral and there would be definite tenderness on moving the cervix with the finger.

Intestinal obstruction would be unlikely. It is a short story, going on twenty-four hours, and I do not think we should get a white count as quickly as that, or as much tenderness.

We thought at the time it was fairly safe to say that she had an acute process in the right lower quadrant, presumably appendix, in spite of the fact that that appendix was said to have been taken out.

The Wassermann was strongly positive. I do not think it has anything to do with us at present.

PRE-OPERATIVE DIAGNOSIS

Acute appendicitis.

OPERATION

Gas-ether. Right rectus muscle splitting incision excising the previous scar. The appendix was found with the tip presenting, gangrenous, covered with fibrin. There was some cloudy fluid in the pelvis. The appendix was free, curling over the anterior surface of the cecum. It was removed in routine fashion. The stump was not buried. A Miller wick to the right iliac fossa.

PATHOLOGICAL REPORT

An appendix 4.5 centimeters long and gangrenous.

Acute appendicitis.

FURTHER DISCUSSION

The appendix was four and a half centimeters long. That is rather a short appendix. The average is six to ten. But the interesting thing about this was that the girl insisted that her appendix had been taken out. That brings up the point, when should we leave an acute appendix in? Quite frequently we operate on a case of acute appendicitis and find an abscess and a lot of trouble and inflammatory tissue around in that region, and the appendix is not readily found. The only wise thing to do is not to look for the appendix any more but put in a drain. We know it will get well if we drain. We do not know where the appendix is. By looking for it we are probably going to break through a well walled-off process. Not infrequently in this hospital and in our private practice we do a second operation for acute appendicitis, where the appendix was left in the first time. When we have an acute appendix we are by no means obliged to take it out. The wisest thing is merely to drain and later do an interval appendix, say five or six months after the acute process; and it is remarkable how often we find almost no adhesions to bother us.

That brings up another thing,—that very many times we see patients who do not know what has been done to them at a previous operation. It is a great handicap in arriving at a diagnosis. Presumably this girl was told that it had *not* been taken out. We have no means of telling. But in spite of it, it was a perfectly clear case of acute appendicitis or abscess in the right lower quadrant. That was the only point I wanted to bring up, that frequently when we operate on acute appendicitis we do not necessarily have to take the appendix out, because if we do we may kill the patient. By leaving it in we can take it out later on.

DR. CABOT: What was the pre-operative diagnosis?

DR. REGGIO: Acute appendix.

DR. CABOT: You kept your courage and did not lose it merely because of what the history said.

DIAGNOSIS

Acute appendicitis.

DECLINE IN MORTALITY FROM ALCOHOLISM—Alcoholism caused 427 deaths in this nine months' period as compared with 433 during the corresponding months of 1926. The deathrate declined slightly, that is, from 3.3 per 100,000 in 1926 to 3.2 in 1927. Cirrhosis of the liver, which is closely associated with alcoholism, was charged with 865 deaths; in the same period of last year there were 863. The death rate also dropped a little: from 6.7 per 100,000 in 1926 to 6.4 in 1927. Twenty-two deaths were charged to wood and denatured alcohol poisonings as compared with 24 during the first nine months of 1926. — *Bulletin, Metropolitan Life Insurance Company.*

DIPHTHERIA TESTS—Determination of the virulence of diphtheria bacteria by means of a stop watch and a simple electrical device instead of the "guinea pig" method, was discussed by Dr. L. S. Falk of the University of Chicago before the Society of American Bacteriologists.

Under the method used by Dr. Falk and his assistants a report can be made on the virulence of the bacteria within 24 hours, while under the "guinea pig" method it is necessary to wait from six to eight days to be certain that the bacteria are not virulent.

In several hundred tests made in collaboration with the Chicago Health Department, Dr. Falk said, the results from the electrical or cataphoretic method were 94 per cent. in agreement with the "guinea pig" tests and in the other 6 per cent. the electric method placed the cases in the virulent class.—*The New York Times.*

ITALIAN MAYOR SEES BOSTON HEALTH UNITS—CAVALIER COPPOLA STUDYING SANITARY CONDITIONS HERE—Cavalier Vittorio Coppola, Mayor of San Sossio, Baronia, Italy, was the guest of the City of Boston, being recevied at City Hall by George E. Phelan, trustee of the George Robert White fund, and Dr. Francis X. Mahoney, health commissioner, who took him on a tour of inspection of the city's health units.

Cavalier Coppola, who has been decorated by Mussolini, is visiting this country to study American sanitary conditions, at the request of the premier. He hopes to carry back ideas for adoption by Italian cities and towns. He was accompanied to City Hall by Michael Copodilipo of Somerville, Antonio Copodolipo of Boston, Frank Del Vecchio of Boston, John J. Di Rocco of Revere and Miss Irene McAuliffe of police headquarters. After the City Hall visit Mr. Phelan gave the party a luncheon at the Hotel Bellevue.—*The New York Times.*

THE BOSTON

Medical and Surgical Journal

Established in 1828

Published by THE MASSACHUSETTS MEDICAL SOCIETY under the jurisdiction of the following-named committee:

For Three Years

JOHN W. BARTOL, M.D. FREDERICK T. LORD, M.D.
CHANNING FROTHINGHAM, M.D.

For Two Years

HOMER GAGE, M.D., *Chairman* EDWARD C. STREETER, M.D.
EDWARD W. TAYLOR, M.D.

For One Year

WILLIAM H. ROBEY, JR., M.D. ROGER I. LEE, M.D.
ROBERT B. OSGOOD, M.D.

EDITORIAL STAFF

DAVID L. EDSALL, M.D. STEPHEN RUSHMORE, M.D.
REID HUNT, M.D. HANS ZINSSER, M.D.
JOHN P. SUTHERLAND, M.D. BENJAMIN WHITE, PH.D.
GEORGE R. MINOT, M.D. HENRY R. VIETS, M.D.
FRANK H. LAHEY, M.D. ROBERT N. NYE, M.D.
SHIELDS WARREN, M.D.

WALTER P. BOWERS, M.D., *Managing Editor*

ASSOCIATE EDITORS

GEORGE G. SMITH, M.D. WILLIAM B. BREED, M.D.
JOSEPH GARLAND, M.D.

NEW HAMPSHIRE MEDICAL SOCIETY
PUBLICATION COMMITTEE

D. E. SULLIVAN, M.D. EMERY M. FITCH, M.D.
JOSEPH J. COBB, M.D.

SUBSCRIPTION TERMS: *$6.00 per year in advance, postage paid for the United States, $7.56 per year for all foreign countries belonging to the Postal Union.*

Material for early publication should be received not later than noon on Saturday. Orders for reprints must be sent to the Journal office, 126 Massachusetts Avenue.

The Journal does not hold itself responsible for statements made by any contributor.

Communications should be addressed to The Boston Medical and Surgical Journal, 126 Massachusetts Avenue, Boston, Mass.

SOME FEATURES OF THE NURSING SITUATION

IN "Hospital Management" for November, 1927, is given a report by the Committee on Nursing of the Hospital Association of the State of New York, and in the same number a reply to the criticisms of this report made by the Assistant Commissioner for higher and professional education. The report of the Committee on Nursing of the Hospital Association of New York expresses marked dissatisfaction with the present requirements and supervision of nursing education in New York State.

As all training schools would like to feel that their graduates can qualify anywhere, and as the New York requirements are particularly —one might almost say notoriously—severe, this critical report is of very general interest. While much emphasis in this report is placed on courses, the question of affiliation and training in the specialties is taken up. They state, "Over-training and theory unfits many graduates for the ordinary care of the sick while at the same time they are not adequately prepared for teaching or any other specialty." As an example of the ridiculous extreme to which some hospitals are obliged to go in meeting the requirements as at present laid down, the writer knows of one Boston hospital which has to send some of its nurses to New York City in order to fulfill the requirements for training in the specialties.

The widespread dissatisfaction among physicians, laity and smaller hospitals with the present nursing situation must have some basis in fact. How, with the present day tendency to emphasis on specialties and training, it will be possible to compromise between the demands of the sick for nursing care at reasonable price, the demands of the physicians for skilled nurses, and the demands of the hospitals for value received in proportion to what they give the pupil nurses, is a problem the answer to which is far distant.

The reply of the New York State Assistant Commissioner is far from convincing; for example he states with reference to the critical report, "This report fails to state that every student gives daily from eight to twelve hours of exacting labor in return for any education she may have received." The writer would be interested to know of any hospital, at least in this vicinity, that receives eight to twelve hours of labor daily from the student nurses during their time in training. At present in most hospitals, they do little if any work for the hospital for the first four months of their course, and at other periods they are absent from the hospital for the required affiliations. One statement is particularly striking, "The education department recognizes the need for a better educational background for nurses and has urged nurse training schools to raise their standards to the level maintained by other professional schools which are concerned with the public health." This sounds suspiciously as though ultimately a complete medical course would be required.

GRADENIGO'S SYNDROME

IN 1904 Gradenigo[1] observed several patients with similar symptoms following acute infections of the middle ear. He evolved a syndrome consisting of three outstanding signs which he felt was probably a definite clinical entity. Since that date, Gradenigo has augmented his own original paper by a second study[2], in which he reported over fifty cases showing the same symptom-complex. The syndrome is well-known among otologists and ophthalmologists, but very little about it has appeared in the general medical literature, and in spite of the twenty or more years since the syndrome was described, there are still only vague accounts of it in the standard textbooks and systems of medicine.

Gradenigo pointed out the three important signs: acute suppurative otitis media, severe temporo-parietal pain, and paresis or paralysis of the abducens nerve on the same side. There is always, therefore, an acute purulent otitis with or without spontaneous perforation of the

tympanic membrane. This is followed immediately, or in some cases six to eight weeks after the acute otitis media, by severe pain over the distribution of the trigeminal nerve, usually only its upper branch being involved. The pain is not distinguishable from trigeminal neuralgia of the Fothergill type, except in its distribution in the upper branch, an area not usually involved in the more common facial neuralgia. The paralysis of the sixth nerve often appears suddenly and rather unexpectedly, the patient first noticing diplopia. This lesion is more likely to occur after the temporo-parietal pain, on an average of thirty to fifty days after the acute otitis. There may be certain accessory symptoms, but they are usually not very striking in character.

Considerable discussion will be found in the literature in regard to the exact pathology of this syndrome. It seems apparent that the lesion must center around the apex of the petrous portion of the temporal bone. One finds here rather large pneumatic cells, often enclosed by thin bony walls. The sixth nerve, in its course from the medulla to the external rectus muscle, passes directly over the tip of the temporal bone, sometimes lying in a distinct bony canal, first described by Dorello and referred to by Gradenigo in his original article. Anatomical studies on Dorello's canal were carried out, some years ago, by Dr. H. H. Vail[3], at Dr. Mosher's laboratory at the Harvard Medical School. Dr. Vail thought that because of the passage of the sixth nerve through Dorello's canal, the nerve was especially likely to be compressed by slight inflammatory swellings and therefore to produce abducens palsy. In close proximity to Dorello's canal is found the posterior root of the fifth or trigeminal nerve. It would seem likely, therefore, that the pathology of this syndrome must be definitely localized at the tip of the petrous portion of the temporal bone, where these structures lie close together. Excellent dissections of this region have been made by both Vail and Wheeler[4] and illustrations accompanying their papers give a clear idea of the anatomical relations.

The paralysis usually clears up in a few days or weeks, although there have been cases reported in the literature of permanent damage to the nerve. The treatment lies in the field of the otologist for the neurological symptoms depend upon the primary condition in the middle ear. In some cases mastoidectomy is indicated.

REFERENCES

1 Gradenigo, G.: Über circumscripte Leptomeningitis mit spinalen Symptomen und über Paralyse des N. abducens otitischen Ursprungs. Arch. f. Ohrenheilkunde, 1904, LXII, 255.

2 Gradenigo, G.: Über die Paralyse des Nervus abducens bei Otitis. Idem. 1907, LXXIV, 149.

3 Vail, Harris H.: Anatomical Studies of Dorello's Canal. The Laryngoscope, 1922, XXXII, 569.

4 Wheeler, John M.: Paralysis of the Sixth Cranial Nerve Associated with Otitis Media. Transactions of the Section on Ophthalmology, Am. Med. Assn., 1918, 51.

THE PRECEPTOR SYSTEM IN MEDICINE

WITHIN recent years considerable criticism has been heard concerning the type of education which is given even by our best medical schools. It is alleged that the students are trained in theory but not in practice; that when they graduate they may be able to conduct complicated laboratory experiments, but they are quite incapable of looking after a sick patient.

It would appear that the faculties of certain schools recognize this defect in medical education, for distinct efforts to overcome this fault are being made. In some schools the students are placed in hospitals as clinical clerks at an earlier stage than formerly. In other schools, a very interesting experiment is being tried. This departure, which is known as the Preceptor System, consists in placing a few students with selected clinics or general practitioners, in order that they may come into actual contact with the problems of medical practice.

The results of such early attempts in three different universities are related by the Deans of these institutions in the *Bulletin of the Association of American Medical Colleges* for January, 1928. At Wisconsin University, from one to three students at a time were apprenticed to a clinic situated in one of the smaller cities of the State. This year, it is planned to have each student spend six months in extramural study, his time being divided between two clinics. At the University of California this system has been under trial for three years. The first year four students were selected; the second and third years, eight; this year, ten will be so placed. The plan followed at California differs somewhat from that followed at Wisconsin. At the former school, the students are placed for one or two months with a carefully selected preceptor who is a general practitioner in a community of from 3000 to 5000 inhabitants.

At Michigan, two months of the summer vacation were utilized for this purpose, the experiment being made only by students who volunteered to spend a part of their vacation in this way. Dean Cabot said that letters from all the physicians who had had students were uniformly satisfactory. The students, on their part, showed evidence of being both stimulated and benefited. One student, a man somewhat below the middle of his class in scholastic standing, wrote his preceptor as follows: "Just a line to express my appreciation of the best two months I have ever experienced in the field of medicine from the student point of view; in fact, my respect for the practice of medicine has increased 500 per cent. since last June, all of which is due to my association with you."

Have we here an innovation in medical education which is going to prove of value, or is it only an ephemeral attempt to correct a faulty tendency in medical instruction? We can hardly visualize such an experiment in our Eastern schools. The greater number of charitable hos-

pitals in the East, with their huge out-patient departments, offer unlimited material for the teaching of practical medicine. We doubt if the faculty of an Eastern school would take the pains to hunt up suitable preceptors in the smaller towns and groom them for their jobs. We doubt if the busy general practitioner of Middleboro or North Adams would have the time or the inclination to coöperate with the faculty of Harvard, Tufts or Yale for the sake of showing a medical undergraduate the intricacies of his daily routine.

Perhaps we are wrong in this; a few years more may see the scheme in full swing. The advantages of such a plan are obvious, provided the preceptor is well trained and conscientious. As Dean Bardeen of Wisconsin says, even the occasional preceptor who illustrates how *not* to practice medicine teaches a lesson. The association of the man in practice with a student fresh from the lecture room and the laboratory should prove to be a stimulation and a pleasure to both. Will it do so? We must wait and see.

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors:

HARTSHORN, WILLIS E. Ph.B., M.D. University of Minnesota 1898, F.A.C.S., Clinical Professor of Surgery at Yale, Attending Surgeon at the New Haven Hospital, Consulting Surgeon at the Grace Hospital, New Haven, the Griffin Hospital, Derby, Chief of Surgical Clinic at the New Haven Dispensary, Yale University, Fellow of the New York Academy of Medicine and a member of the New England Surgical Society. His subject is: "Intussusception." Page 1297. Address: 67 Trumbull St., New Haven, Conn.

GREENE, THEODORE C. M.D. Harvard Medical School 1924. His subject is: "Intracranial Haemorrhage in the Newly-born." Page 1302. Address: Presbyterian Mission, Peking, China.

DECOURCY, JOSEPH L. M.D. University of Cincinnati 1913, Attending Surgeon at the Good Samaritan Hospital, Chief of Goiter Clinic at the Good Samaritan Hospital. His subject is: "Exophthalmic Goiter." Page 1305. Address: 210 W. 9th St., Cincinnati, Ohio.

FLINN, FREDERICK B. A.B., Ph.D., Associate Chemist and Associate Physiologist of the Department of Industrial Hygiene of the United States Public Health Service 1919-1924. Assistant Professor of Physiology in charge of Laboratory of Industrial Hygiene at the College of Physicians and Surgeons, Columbia University and Consulting Physiologist of the United States Public Health Service. His subject is: "Some of the Newer Industrial Hazards." Page 1309. Address: 437 W. 59th St., New York, N. Y.

CLARK, W. IRVING. A.B., M.D. Columbia University College of Physicians and Surgeons 1904, F.A.C.S., Instructor in Industrial Medicine at Harvard School of Public Health, Consultant in Industrial Surgery at Memorial Hospital, Worcester, Service Director and Surgeon of the Norton Company, Worcester. His subject is: "Hernia in Employees of a Grinding Wheel Factory." Page 1314. Address: 53 West St., Worcester.

GOODMAN, HERMAN. B.S., M.D. College of Physicians and Surgeons, Columbia University 1917, On the Staff of the New York Skin and Cancer Hospital. Address: 18 East 89th St., New York, N. Y. Associated with him is:

ANDERSON, WILLIAM T., Jr. B.S., Ph.D., Director of the Ultraviolet Research Laboratory of the Hanovia Chemical & Mfg. Co. Address: Hanovia Chemical & Mfg. Co., Newark, N. J. Their subject is: "Quantitative Study of Ultraviolet Transmitting Glasses." Page 1316.

ARKIN, LOUIS. B.S., M.D. Harvard Medical School 1904, Graduate of Boston City Hospital, Post-Graduate in Europe, Surgeon, Ear, Nose and Throat, at the Boston Dispensary, Beth Israel Hospital, Chief of Ear, Nose and Throat Department at Forsyth Dental School. His subject is: "An Instrument to Facilitate the Operation of Tonsillectomy." Page 1318. Address: 366 Commonwealth Ave., Boston.

The Massachusetts Medical Society

SECTION OF OBSTETRICS AND GYNECOLOGY

Foster S. Kellogg, M.D., *Chairman* — Frederick L. Good, M.D., *Secretary*

Frederick J. Lynch, M.D., *Clerk*

The Work of the Section.

Certain laymen, magazine writers and governmental bureau chiefs are continually saying that the maternal death rate in the United States is very much higher than in foreign countries, in fact that the United States occupies the sixth place among civilized nations in the maternal death rate. It would seem as if there were an organized propaganda at work to discredit the American physician, and discredit the present methods of teaching obstetrics in Medical Schools. The calm and dispassionate study of the methods used in foreign countries in gathering vital statistics would show how futile it is to try to make a comparison of death rates of one country with another. One has only to consider the difference in social conditions, economic conditions, to say nothing of racial differences that prevail in the world to see how impossible it is to make comparisons. Our great negro population in the south, with its high maternal mortality and its effect on vital statistics is one condition with which no European country has to reckon.

At the last meeting of the American Medical Association at Washington during a discussion in the Section of Obstetrics, Gynecology and Ab-

dominal Surgery*, Dr. Joseph B. DeLee is reported to have said, "I wish that the time would come when we Americans would stop throwing mud at ourselves. I decline to believe that the obstetric mortality of the United States is any more than it is abroad." Those of us who have studied foreign statistics of mortality in the puerperal state heartily endorse Dr. DeLee's statement. This Section, since 1922, has continually striven to bring to the attention of all practitioners of obstetrics, the necessity of careful work.

The medical profession has the right to demand from medical schools the best obstetric training for its students and as far as possible there should be little difference in the training of the specialist and the training of the man who goes in for general practice. It is true that medical students are better trained in obstetrics today than students who took their course twenty-five years ago. To stimulate the interest of the medical man after he has entered the practice of obstetrics and to help him to maintain the standard of good training which he received in his student days has been the aim of the officers of this Section. That this idea might be carried out successfully, it was decided by the officers of the Section to continue the section work according to a stated program throughout the year. It was felt that the men practising far from medical centers should be reached and that an attempt should be made through the Section to give them the benefit of the latest methods in the practice of obstetrics insofar as possible. Among other things, a committee was appointed two years ago to make a study of cases of recurrent toxemia. A questionnaire was sent to practitioners and they were asked to fill it out and send what information they had on this subject to the chairman of the committee who had this matter in hand. The responses to this were not as many as the officers of the Section might have desired. Some medical men did reply and furnished valuable information. These replies and the interest shown by others in the work amply repaid the officers of the Section for their labor.

This year the Section is making a survey of the incidence of puerperal septicemia in Massachusetts. At the last meeting of the Section in June, 1927, the chairman of the Section was requested to appoint a committee of ten to make this study. The names of the committee have already been announced and the committee has begun its work. The committee wishes to thank the members of the profession who have already aided for the fine spirit of coöperation which has been shown. The committee on the study of the incidence of puerperal fever in Massachusetts in 1927 is trying to make this survey an impersonal one. The aim of the survey is to attempt to reduce the mortality rate in puerperal septicemia. To effect this, it will be necessary to study the history of each case that occurred during the year 1927. All the cases of puerperal septicemia reported in 1927 are now in the hands of the committee. That this attempt may be successful, the coöperation of the profession is necessary. Thus far the committee feels that it has this coöperation. We trust that this splendid spirit will continue.

The statement has been made again and again that puerperal septicemia is a preventable disease. This statement is not true and its circulation has caused a great deal of distress. Insofar as puerperal septicemia is a preventable disease, so far is it imperative that the profession should use all its power to maintain that degree of prevention. At the expense of being charged with repetition, we wish to say that as far as we know, this is the first attempt by any large body of physicians to make a study of the incidence of puerperal septicemia. We hope that this attempt will be successful and know it will be successful if the physicians of the Massachusetts Medical Society will furnish unrestricted coöperation. We expect it!

Questions of a similar nature to the above will be discussed in the JOURNAL each week. They may be addressed to the Clerk of the Committee, in care of the JOURNAL and will be answered by members of the Committee of the Section of Obstetrics and Gynecology.

*The Journal,—American Medical Association, Volume 89, No. 25, Page 2092.

MISCELLANY

POSTPONEMENT OF THE INDEX

The probable change of the title of the BOSTON MEDICAL AND SURGICAL JOURNAL after the nineteenth of next February presents a complication with respect to the apportionment of the number of weekly issues to the present volume.

If this change, which will be recommended by the Committee of Nine which has charge of the JOURNAL, is to be adopted by the Massachusetts Medical Society, a volume should be started under the new name.

Because of this expected change the present volume will be continued until the one hundred years of consecutive publication shall have been completed and, therefore, the publication of the index will be deferred and the issues of January and part of February, 1928, will be included in Volume 197 and the index of Volume 197 will be published in February.

The new name of the JOURNAL will probably be the *New England Journal of Medicine*, which will be more appropriate under present conditions because the Massachusetts Medical Society is now affiliated with the New Hampshire and Vermont Medical Societies in the publication of this JOURNAL.

The Maine Medical Association has shown a desire to also unite with the three States mentioned above when the designation "Boston" shall have been dropped.

THE CLINIC AND ITS SOCIAL SIGNIFICANCE

L. W. HARRISON—HEALTH AND EMPIRE, LONDON, 1927, II, 10.

In 1913 it was shown in the evidence before the Royal Commission that the average civilian who

became infected with one of the venereal diseases went practically untreated. On this evidence the Royal Commission advocated the establishment of free treatment centers. An estimate is made of the loss, if this free treatment had not been offered. In 1920 there were reported to the clinics about 42,000 cases of syphilis and 40,000 cases of gonorrhea. Of the 42,000 cases of syphilis probably 6,000 would have died of some sequel of syphilis had it not been for the treatment afforded by the free clinics. Assuming that the value of a man's life is £60—a very low figure considering that these people would have died in the most productive years of life—the loss would have been £360,000. That is a few thousands less than the cost of the venereal disease scheme in England and Wales at the present day. This represents only the saving of life. It is calculated that the average patient before death is ill for about three years. Therefore the system of free treatment by which many thousands of people are prevented from becoming burdens on the community at a time of life when they should be national assets must be of immense value to the nation.

The author refers to the registrar general's statistical review of England and Wales for 1924. In 1924 the rate of infant mortality from syphilis had become less than half what it was in 1917. The mortality from syphilis itself, tabes, general paralysis, and aneurysms since 1917 had made a striking decline. The report points out that the returns of syphilis mortality, far from being "suspect," seem to form on the whole a reliable source of information.

The author adds that the infant mortality from syphilis showed a further decline in 1925. The free treatment centers must also be given credit for a substantial reduction of the various disabilities consequent on congenital syphilis.

If it can be rightly assumed that the majority of patients having fresh infections find their way to the treatment centers, the 7,000 fresh infections in 1925 mean a very great reduction in the incidence of new cases of syphilis in England and Wales. This is deducted from the fact that from 1911 to 1920 the average number of deaths in England and Wales from general paralysis was 2,000 a year. The incidence of general paralysis in syphilitics is usually calculated at approximately 1 in 25, and the deaths at approximately 16 years after infection, so that, if these figures are correct, the average of 2,000 deaths from 1911 to 1920 meant an average incidence of 50,000 fresh infections 16 years previously.

Concerning gonorrhea the decline in numbers of cases reporting to the clinics is slight. In 1920, 40,000 cases were treated for the first time. In 1925 the number was 33,000. It must be conceded that in 1924 a much more serious view was taken of gonorrhea than in 1920. It is therefore true in all probability that the 33,000 of 1925 represents a much larger proportion of the infected than did the 40,000 of 1920.

Therefore on the score of the prevention of transmission to others the clinics can claim much credit.

The educational value of the free-treatment centers, to the outside public, as well as to those who came as patients, is very great.

The need for high standards for the clinics is a matter of greatest importance. The author believes that the right medical officer is as conducive to regular attendances as compulsory treatment which obtains in other countries.—*Venereal Disease Information.*

MISS EVANS IS HONORED AS MARTYR TO SCIENCE

A martyr to science, victim of a disease that now confines her to the Marine Hospital in Norfolk, Va., Miss Alice C. Evans, Washington bacteriologist, has learned that she was elected President of the American Bacteriologists' Society. The distinction was accorded to her by the society at its convention last night in Rochester, N. Y.

Five years ago Miss Evans, who is associated with the United States hygienic laboratories, contracted malta fever in discovering that it is sometimes acquired by human beings from cattle. Since then she has been subject to frequent attacks of the fever, the present illness having kept her in the hospital for nearly a year.

Dr. George McCoy, director of the laboratories, under whom Miss Evans has done much of her work, declared that her malta fever discovery was of great importance to medical science and that she had also done valuable experimental work in infantile paralysis and sleeping sickness.

Similar tribute was paid by Surgeon General Hugh S. Cumming of the Public Health Service, who declared that in her ten years' service with the organization she had become one of the country's foremost bacteriologists.

A native of Pennsylvania, Miss Evans was educated at the universities of Chicago and Wisconsin. She first entered the Government service as bacteriologist in the dairy division of the Department of Agriculture.—*The New York Times.*

UNITED STATES PUBLIC HEALTH SERVICE

The Surgeon General Reviews World Health Conditions and Summarizes His Work in Annual Report

An accounting of the health of the people of the United States in so far as Federal duties and responsibilities are concerned is given in the Annual Report of the Surgeon General of the Public Health Service, which has just been transmitted to Congress. This is the Report for the 129th year of the existence of the Service.

The Surgeon General says that through modern developments in public health organizations—national and international—it is now practicable for the country to keep informed of the prevalence of epidemic diseases and of the health of populations throughout the world. This knowledge is of considerable importance in preventing the introduction of dangerous communicable diseases into the country from abroad.

Health conditions generally throughout the world were better during the year ended June 30, 1927, than for any previous year on record. The first half of the year was characterized by unusually low death rates in foreign countries. The most serious condition that interposed to prevent even lower mortality rates in Europe was the epidemic of influenza which affected a considerable area of that part of the world.

Bubonic plague, which, by reason of its wide geographic distribution and the method of its spread, remains one of the major quarantinable diseases, continued to be pandemic, but was less prevalent than it has been in recent years. India remained the principal focus of infection, that country having over nine-tenths of the cases reported throughout the world.

Asiatic cholera, which is still a great scourge in India, showed no decrease there, and appeared with more than usual prevalence in the countries eastward as far as Korea and Manchuria.

It is an interesting commentary on the advancement of modern sanitary science that yellow fever—a disease the very name of which not so long ago terrified even the people of this country—was practically confined to one section of the continent of Africa during the year under report. With the ex-

ception of one case which occurred at Bahia, Brazil, in July, 1926, the disease was not reported in the Western Hemisphere.

The devastating epidemics of typhus fever which swept Russia after the World War have definitely passed, although the disease remains endemic in that region. There was no marked spread of the disease during the year.

The health of the people of the United States was generally good during the year ended June 30, 1927, as compared with preceding years. The death rate for all causes for the calendar year 1926 in 28 States was 12.1 per 1,000 population. This was slightly higher than the rate for 1925, which was 11.7. The increase was probably caused principally by the large number of deaths from respiratory diseases. This country escaped the epidemic of influenza which swept over Europe during the winter of 1926-27, and the few cases reported here were mild. Typhoid fever declined during the calendar year 1926, and the case and death rates for diphtheria for the year were the lowest ever recorded. This disease showed a small increase, however, during the first part of 1927. The general downward trend in diphtheria is undoubtedly the result of the use of antitoxin and toxin-antitoxin immunization.

The death rate from tuberculosis continued its decline, and heart disease, diabetes, and nephritis, which have been increasing in recent years, showed lower rates than were expected.

Smallpox decreased during the calendar year 1926. In most sections of this country the disease was a mild type, but in some localities it existed in severe form. Out of a total of 30,450 cases of smallpox reported during the year from 41 States, there were 380 deaths. The disease was the most fatal on the Pacific Coast, which section reported only one-fifth of the total number of cases, but two-thirds of the number of deaths. In view of the demonstrated protective value of vaccination, the Surgeon General says that it is difficult to explain why this simple preventive measure is not universally employed.

Although endemic foci of the important quarantinable diseases continued to exist abroad, no cases of cholera, yellow fever, or bubonic plague gained entrance to the country during the year. Two cases of plague were apprehended aboardship at the United States quarantine station at New Orleans, La., and 17 cases of smallpox and 2 cases of leprosy were detected at domestic quarantine stations. The discovery of three cases of plague among rats at Los Angeles, Calif., however, indicates that the disease continues to exist among rodents; and it persists especially among ground squirrels in certain sections of California, and requires vigilance on the part of the health authorities concerned for the protection of the human population.

The geographical prevalence of tularaemia, a disease identified a few years ago by an investigator of the Public Health Service, was discovered during the year to extend to 10 additional States, increasing the area of known distribution of this new disease to 36 States, the District of Columbia, and Japan.

Rocky Mountain spotted fever is another disease being studied by the Public Health Service, the knowledge of the area of prevalence of which is being extended. This disease originally reported by only two Western States, was reported last year from nine States.

The infant mortality rate (deaths of infants under one year of age per 1,000 live births), considered an important index of the efficiency of public health work, has been decreasing for many years. The rate for 28 States in 1926 was 72.8, as compared with 71.5 for 1925, both of which rates are extremely low as compared with rates of a few years ago (about 100 in 1915).

The work of the Public Health Service in preventing the introduction of diseases from abroad involves both control at domestic ports and medical inspections at certain foreign ports. At domestic ports during the year, 20,284 vessels, 820,793 passengers, and 1,140,922 seamen were inspected by quarantine officers; at insular ports, 2,291 vessels, 169,461 passengers, and 226,373 seamen were inspected; and at foreign ports, 5,954 vessels, 424,172 passengers, and 272,873 seamen were inspected prior to embarking for the United States. A total of 7,116 vessels were fumigated, either because of the occurrence of disease aboard or for the destruction of rodents. Thirty-one thousand and seventy-three rats were recovered, of which 18,334 were examined for plague infection.

The medical examination, by Public Health Service medical officers, of applicants for immigration visas in foreign countries of origin, first inaugurated in 1925, in England, Scotland, and Ireland, was extended during the past year in Germany, Sweden, Norway, Poland and Denmark. The advantages of the system to the prospective immigrants, to the communities of origin, and to the transportation companies resulted in additional requests to the State Department for the extension of the plan to other countries. During the year medical examination of applicants for immigration visas were being made by Public Health Service officers at 20 American consulates in eleven countries. Out of 148,539 applicants examined during the year, 12,974, or 8.75 per cent., were found to have mental or physical disabilities; 6,580, or 4.43 per cent, were refused visas for medical reasons.

At domestic ports 881,699 alien passengers and 996,317 alien seamen were examined under the immigration law, by medical officers of the Public Health Service, and of this number 24,293 passengers and 3,117 seamen were certified for various diseases and disabilities coming under the law.

Investigation was made of the typhoid fever epidemic in Montreal, Canada, with the permission of the Canadian authorities, and a report was made regarding the cause of the epidemic and recommending precautionary measures.

Aid was given the local authorities in the localities of Florida devastated by the hurricane of September, 1926, and the Public Health Service co-operated with the States and the American Red Cross in the emergency relief work in the Mississippi flood area. Within ten days from the beginning of the flood emergency, 14 Public Health Service officers trained in emergency health work and familiar with the localities affected by the flood, were in the field to assist the State Health Authorities. Arrangement has also been for a continuance of this co-operation in providing public health protection to the inhabitants of the devastated areas during the period of rehabilitation.

The Public Health Service continued to provide medical and hospital treatment of sick and injured American merchant seamen and other Government beneficiaries—the oldest function of the Service and the specific purpose for which it was organized under the act of July 16, 1798, 129 years ago—and probably at no time during this period has the aid thus given by the Government to American merchant vessels been of greater value or of more importance in keeping the American flag on the seas.

More than 300,000 beneficiaries apply annually at 152 ports of the United States and its insular possessions where marine hospitals and relief stations are maintained for the giving of hospital and outpatient treatment and making physical examinations. There were 1,288,061 hospital days' treatment given,

mostly to merchant seamen and Coast Guardsmen, and 632,341 separate out-patient treatments were supplied. The American seamen are the principal beneficiaries, receiving 67.4 per cent, of all the hospital treatment furnished. The Coast Guard furnished 14 per cent. of the clientele, while the Employees' Compensation Commission constitutes about one-fifth of the total of the Service beneficiaries.

Because of the exceptional facilities offered in the hospitals of the Public Health Service for the study of syphilis and gonorrhea, important investigations were undertaken, at the marine hospital at New York, of more effective methods of prevention and treatment. Over a period of many years about 20 per cent. of all patients treated by the Service were ill as the result of venereal disease. In 1926, however, this percentage was slightly lower, the rate being 17.

As evidence of the extent of antivenereal disease work during the nine years since the Division of Venereal Diseases was established, 3,105,952 cases of venereal disease have been reported by the State boards of health, nearly 800 venereal disease clinics have been established by various agencies at which 1,023,326 patients have received 16,330,994 treatments, 62,594 lectures have been delivered to a total of 8,530,000 persons, and 34,676,512 pieces of educational literature have been distributed.

The investigations of public health problems contined during the year. The investigations of stream pollution have been of great practical benefit in determining the limitations of natural and artificial purification of polluted water. The malaria studies have demonstrated the possibility of airplane control of mosquitoes in otherwise inaccessible areas by spreading larvicidal dust. Various inquiries were made in the study of health problems in industry. Other public health problems investigated include child health, posture studies, the advantages of exercise to health ,and industrial morbidity.

In investigations of the diseases of man, an extremely importnat function of the Public Health Service, studies have continued on pellagra, the timely results of which have had a valuable application in the flood area, and on tularaemia, tuberculosis, Malta fever, typhus fever, trachoma, pneumonia, encephalitis lethargica, Rocky Mountain spotted fever, syphilis, goiter, influenza, and leprosy.

Further studies on narcotic drug addiction indicate a reduction in the number of habitues, and confirm the opinion previously arrived at that addiction is, in general, a symptom of neuro-psychopathic make-up.

In a survey of salt-marsh mosquitoes conducted in co-operation with the Bureau of Entomology, it was found that although there are nearly 6,000,000 acres of salt-marsh along the Atlantic and Gulf Coasts, the acreage requiring mosquito control can be expressed in tens of thousands.

It has been the long standing policy of the Public Health Service to co-operate with officials and unofficial bodies for the advancement of the public health. Some of the work is specifically required by law; the remainder is sanctioned by efficient health administrations. The volume of co-operative work conducted during the fiscal year was extensive, and included practically all the departments and some independent establishments of the Government.

In the field of international development, the year was marked by two important international official conferences for the improvement of existing treaties or conventions regulating maritime procedures. The representatives of 60 Governments, cluding the United States, met during the year at Paris to revise the International Sanitary Convention of Paris (1903, 1912), which was necessitated by recent advances in medical science. A conference of the directors of health of Pan American Governments was held in Washington, under the chairmanship of the Surgeon General as director of the Pan American Sanitary Bureau, during which constructive progress was made in matters pertaining to Pan American public health and sanitation.

Among the recommendations made by the Surgeon General in his annual report, he commends a bill introduced in the last Congress for the co-ordination of public health activities of the Government, which provides for a grant of authority to the President to transfer to the Public Health Service any executive agency (other than those in the War and Navy Departments and those in the Veterans' Bureau) when such transfer is deemed to promote greater efficiency in the conduct of public health work. The bill also provides for details of officers of the Public Health Service to other executive agencies, upon request of the heads of departments or independent establishments; for the extension of research through close co-operation with educational and research institutions by an enlarged hygienic laboratory; and for the co-ordination of research of public-health officials and scientific workers. Provisions were also contained for unification of terms of appointment of personnel, with compensation and tenure assured to scientific and professional workers adequate to attract to the service, men and women of proved qualifications; and for the enlargement of the present advisory board for the hygienic laboratory into a national advisory health council. The Surgeon General believes that such a co-ordination of public health activities would tend to eliminate duplication of effort in administration, research, and educational measures, and would prove a decisively forward step in public health in the United States.

RECENT DEATHS

SUNDELOF-ERICSON—Dr. Ester Mathilda Eleanora Sundelof-Ericsön, a former member of the Norfolk District, and since her marriage three years ago a non-resident fellow of the Massachusetts Medical Society, has been reported dead at her home in New York City, December 21, 1927, at the age of 32.

Dr. Sundelöf-Ericson was the wife of the Rev. Eric G. Ericson of New York, and the oldest daughter of the Rev. Dr. A. W. Sundelöf and Mrs. Sundelöf of Boston. Her father is rector of St. Ansgarius Church (Swedish) in Roxbury. She was graduated from the Girls' Latin School, Boston, and from Tufts College Medical School, with honors, in June, 1916. She was well known in Boston and New York as an X-ray specialist.

Before her marriage she was connected with the Boston City Hospital, the Lynn Hospital and the New England Hospital for Women and Children. She was also associated with the X-ray laboratory of Boston. In 1918 she accompanied the Grenfell expedition to Labrador.

Besides her husband and parents she leaves a small daughter, Ingrid Ester, two sisters, Mrs. Carl Asband and Miss Astrid Sundelöf, and a brother, Herbert Sundelöf.

BULLARD—Dr. Herbert Cutler Bullard, a Fellow of the Massachusetts Medical Society from 1871 to 1886, then a practitioner of North Attleborough, died at Lawrence, Long Island, January 6, 1928, at the age of 85.

Dr. Bullard was born in West Medway, March 25, 1843, was a graduate of Phillips Andover Academy and of Brown University in the class of 1866. He served as professor of mathematics and rhetoric in the United States Naval Academy and then took up the study of medicine at the New York College of

Physicians and Surgeons, where he received his M.D. in 1871. After the death of his wife in 1907 Dr. Bullard moved to the West Indies, but had returned frequently to North Attleborough for visits.

He is survived by a son, Dr. Newell Cutler Bullard, a graduate of the University of Vermont College of Medicine in 1898 and now a practitioner in North Attleborough.

QUA—It has been learned that DR. LESTER ROBERT QUA, a retired Fellow of the Massachusetts Medical Society, having a residence in Pepperell, Mass., died of heart disease at Randolph, Vt., August 17, 1927, at the age of 70. He was a graduate of the College of Physicians and Surgeons, Boston, in 1883, and of Dartmouth Medical School in 1886, joining the Massachusetts Medical Society in that year from East Pepperell. His name was placed on the retired list in 1923.

CORRESPONDENCE

THE ORIGIN OF THE WORD "ANAESTHESIA"

December 31, 1927.

Mr. Editor:

I have read with profit the interesting communication of Dr. Albert H. Miller on the origin of the word "anaesthesia" in the JOURNAL for December 29. The first usage of the word which is cited is that of J. P. Quistorp's doctor's dissertation, *De anaesthesia, von dem unempfindlich seyn*, 1718 (23 leaves). It occurred to me that it might interest your readers to know of a still earlier usage. Osler has pointed out that anaesthesia was used in the *Timæus* of Plato (*Annals Hist. Med.*, 1917, 1, 329) and is to be found on page 497 of the third volume of Jowett's *Plato* (3rd edition, 1892). Plato states that the harder and more compressed parts of the body acquire a certain anaesthesia. An early medical usage of the word appears in Dioscorides where it is stated that the Memphitic stone applied to a part to be cut or cauterized "is reported to induce a safe local anaesthesia" (*De Materia Medica*, ed. Max Wellmann, 1914, 3, 100). These references were pointed out to Osler by Dr. E. Withington of Oxford.

Yours very truly,

J. F. FULTON, M.D.

126 Longwood Avenue, Brookline.

BRAZILIAN MEDICAL SUPERSTITION—THE CURANDEIRO

Mr. Editor:

The following graphic description of some medical superstitions of Brazil, and the *Curandeiro*, is taken from Roy Nash's, "The Conquest of Brazil" (Harcourt, Brace and Company, New York, 1926).

"The curandeiro is a social institution, that has come down through the centuries of Brazilian history, accumulating traditions, if not knowledge, and with as rigid professional ethics as his scientific rivals. Half the fun in life will for me be gone, if ever he should disappear. I love to contemplate him, as he sat at the church door, on Sunday mornings, a hundred years ago, making urinalyses, long before we had laboratories for the purpose. An anxious husband or father galloped in, from a weary ride of perhaps a hundred miles, and handed the curandeiro the cow's horn containing the liquid he had so carefully guarded all the way. The curandeiro took the sample without asking any questions about the patient, poured a little into the palm of his hand, looked at it toward the light, and tossed it into the air. Painstakingly he repeated the experiment in the interest of absolute accuracy. He watched it minutely to see whether it fell in large drops or small. From this he was able to tell if the disease were hot or cold, and to prescribe accordingly."

"Although history has not preserved all his prescriptions, contemporary practice enables us to fill in the picture. An infallible cure for snake bite, for instance, is the following 'magic words',

SATOR
AREPO
TENET
OPERA
ROTAS

Each line is to be written separately on a slip of paper, and then rolled into the form of a pill, the whole five to be administered as soon as possible after the person or animal has been bitten."

"He has an infallible means of prognostication in cases of severe cough: catch the fish called the *mayu*, have the patient spit in the fish's mouth, replace the fish in the stream—if the mayu swims up-stream the patient will live, if down he will die. The curandeiro has an unwritten manual which might be entitled "Birth Made Easy", which doth affirm: "If a woman in labor will change shirts with her husband, each wearing the other's inside out, she sitting with his hat on, in the center of a twenty litre tub, she 'gives the child to the light' much more successfully. To extract the placenta: cut the cord and apply to the inside of the right leg. Place a slipper, sole outward, over the cord and tie with a red ribbon."

"Alcoholism offers no problem to the curandeiro. 'Place a piece of bread in the armpits of a dying man, the smallest portion administered without his knowledge, to one addicted to intemperance, will produce a perfect cure.'"

Very truly yours,

WM. PEARCE COUES, M.D.

December 21st, 1927.

ARTICLES ACCEPTED BY THE AMERICAN MEDICAL ASSOCIATION COUNCIL ON PHARMACY AND CHEMISTRY

535 North Dearborn Street, Chicago, Ill.
December 30, 1927.

Editor, Boston Medical and Surgical Journal:

In addition to the articles enumerated in our letter of November 26, the following have been accepted:

Winthrop Chemical Company, Inc.
Phanodorn.

CHANGE OF AGENCY

Gynergen, formerly distributed by H. A. Metz Laboratories, Inc., New York, is now distributed by Sandoz Chemical Works, Inc., New York. The Council has continued the acceptance of Gynergen under the new distributor.

Yours truly,

W. A. PUCKNER, *Secretary*,
Council on Pharmacy and Chemistry.

NOTES ON NATIONAL AFFAIRS

BY JAMES A. TOBEY

Congress, the United States Supreme Court, and many of the numerous bureaus of the executive departments of our national government are constantly doing things, such as considering bills, making laws or regulations, handing down decisions or opinions, issuing reports, and performing other activities which are of direct interest and importance to the medical profession. As in past years, an endeavor will be made in these notes to keep readers of the JOURNAL informed of those activities in the national capital which concern them.

CONGRESS CONVENES

The Seventieth Congress convened by law on December 5th and adjourned temporarily on December 21st for the Christmas holidays. During the first two weeks of the session considerably more than 8000 bills and resolutions were introduced, though only one or two were passed. The President's message, delivered at the beginning of this Congress, contained nothing at all on the subject of national health.

FEDERAL HEALTH CO-ORDINATION

Perhaps the most important measure of a public health nature is that introduced by Mr. Parker, H. R. 5766, for the correlation of the health activities of the federal government. This is the same bill which was before the last Congress and upon which hearings were held just prior to adjournment. This proposed law authorizes the President to transfer to the Public Health Service any bureau engaging in public health work, except those of the Army, Navy, and Veterans' Bureau. The President is also empowered to authorize the details of scientific personnel from the Public Health Service to other bureaus, or to educational institutions.

Among other important provisions in this bill are grants of a commissioned status to the sanitary engineers and other non-medical scientific personnel in the Public Health Service, the establishment of a nurse corps in the Service, and the creation of a national advisory health council. No new appropriations are requested.

In the Senate a somewhat similar bill has been introduced by Mr. Ransdell as S.871. It contains all of the provisions of the Parker bill, but in addition would establish a national institute of health, which would require an appropriation of $10,000,000.

A FEDERAL BOARD OF ALIENISTS

A United States Board of Alienists, to be composed of twenty well qualified physicians, is proposed by Representative Black. His bill, H. R. 7936, would grant a salary of $25,000 to each member of this board. Its duties would be to diagnose and treat mentally deranged veterans, study mental diseases, recommend a code of ethics for alienists, and inquire into insurance company methods dealing with insanity. An appropriation of $5,000,000 would be authorized for these purposes.

ADULT AND JUVENILE DELINQUENCY

Apropos of the work of alienists, Governor Smith of New York has made a novel suggestion for dealing with criminals in that State. He recommends that hereafter convicted felons should not be sentenced by the court, but by a special State board, made up of legal experts, psychiatrists, and penologists, devoting their entire time to the work. This board would determine whether the criminal should go to prison or to an insane asylum, as well as the length of his punishment or treatment. The plan is a sound and sane one and has been endorsed by experts.

A study of juvenile delinquency has been urged by the Chief of the United States Children's Bureau, who recommends that a new division be created in the bureau for this purpose. An appropriation of $50,000 would be needed for this increased scope of the Bureau, which is also charged, among other things, with the administration of the Federal Maternity and Infancy Law, popularly known as the Sheppard-Towner Act.

MORE FEDERAL MEDICINE

The government would be practising medicine to an even greater extent than at present if a bill, H.R. 5477, introduced by Representative Blanton should be adopted. This measure proposes to extend from January 1, 1925, to September 1, 1928, the time within which tuberculosis contracted by world war veterans shall be presumed to be of service origin. It would also permit veterans who had contracted "social diseases" by their own wilful misconduct to be treated and compensated. This is obviously a vicious piece of legislation.

A bill, H.R. 6504, to authorize an appropriation for additional hospital facilities for veterans has been introduced by Mr. Luce of Massachusetts. There are also a number of other bills for hospitals, frequently for the benefit of some favored locality.

REPORT OF THE SURGEON GENERAL

The best health conditions on record were prevalent throughout the world during the year ended June 30, 1927, according to the annual report of the Surgeon General of the United States Public Health Service. In our own country the death rate for the calendar year 1926 is stated to be 12.1 per 1000 population, which is slightly higher than the rate of 11.7 for 1925. A copy of this report, which recounts the work of our principal national health agency, can usually be obtained without charge from the Public Health Service, Washington, D. C.

STATE MEDICAL LAW ARGUED

The United States Supreme Court heard the constitutionality of the Colorado Medical Practice Act argued before it on December 6th. The case against the law was brought by a chiropractor whose license had been revoked for dishonorable conduct. It was argued in his behalf that the law in question was unconstitutional in that it denied this chiropractor due process of law and the equal protection of the laws. The Supreme Court has in the past upheld State laws regulating the practice of medicine and it seems likely that it will do so here. At any rate, the Court declined to hear further argument, as the Chief Justice stated that the requisite jurisdictional factors had not been established.

NEWS ITEMS

APPOINTMENTS TO THE STAFF OF THE PALMER MEMORIAL HOSPITAL — The following new appointments to the staff of the Palmer Memorial Hospital have recently been announced by the Trustees:

Gilbert Horrax, M.D., Consultant in Neurological Surgery.

Out-Patient Staff—Fletcher H. Colby, M.D., Surgeon to Out-Patients; Joe V. Meigs, M.D., Surgeon to Out-Patients; Isabel K. Bogan, M.D., Physician to Out-Patients; William L. McClure, M.D., Assistant Surgeon to Out-Patients; H. A. Nissen, M.D., Assistant Physician to Out-Patients; E. B. Benedict, M.D., Graduate Assistant.

In addition, Dr. Burton E. Hamilton has been transferred from the Associate Staff to the position of Consultant in Cardiology.

DR. JACOB KASANIN, visiting psychiatrist, has been appointed director of the department of mental hygiene recently created by the Federated Jewish Charities of Boston.

BOSTON HEALTH LEAGUE APPOINTS STANDING COMMITTEE ON MENTAL HYGIENE—A standing committee on mental hygiene has been appointed by the Boston Health League. This committee will advise the League concerning mental hygiene problems and consider possibilities for service to the League by existing mental hygiene organizations in Boston.

MERGER OF TWO PUBLIC HEALTH MAGAZINES—Arrangements have been made for the merging of the *Nation's Health* of Chicago and the *American Journal of Public Health*. The combined magazines will be edited in New York City.

The *American Journal of Public Health* was established in 1911 as the official publication of the American Public Health Association, which then had headquarters in Boston. This journal and its predecessor, the *American Journal of Hygiene*, served for many years as the organ of the Massachusetts Association of Boards of Health. The *Journal* is now edited by an editorial committee of thirteen, of which Dr. M. P. Ravenel is chairman. Mr. Homer N. Calver is managing editor and has associated with him Mr. Arthur Tomalin. Dr. Merrill E. Champion of the Massachusetts State Department of Health, Miss Sophie C. Nelson, R.N., of Boston, and Professor C.-E. A. Winslow of the Yale School of Medicine are among the members of the editorial committee. The *Nation's Health* was established in Chicago by the Modern Hospital Publishing Company about ten years ago. It will be replaced by a magazine to be known as "The Nation's Schools."

DR. KLEINSCHMIDT TO ADDRESS THE MASSACHUSETTS TUBERCULOSIS LEAGUE—The National Tuberculosis Association has delegated Dr. H. E. Kleinschmidt of New York City, Director of Medical Service of the National Tuberculosis Association, to speak at the semi-annual meeting of the Massachusetts Tuberculosis League at the Hotel Statler, February 6, on "The Early Diagnosis Campaign".

THE SEAL SALE GOES OVER THE TOP—The sale of Christmas seals for 1927 will be at least two hundred and fifty thousand, which exceeds that of 1926 by more than ten thousand.

HUNT MEMORIAL HOSPITAL, DANVERS, OPENS—The new Hunt Memorial Hospital in Danvers was recently officially opened. The hospital is to be supported by the Catherine Hunt fund of $105,000, which money was given by Danvers residents as a memorial to Catherine Hunt, one of the distinguished women of the town. Walter and Isabel Tapley donated the building and grounds.

Dr. Frederick W. Baldwin has been chosen chief-of-staff.

DR. RODERICK B. DEXTER APPOINTED CHIEF EXECUTIVE OF BOSTON PSYCHOPATHIC HOSPITAL—Dr. Roderick B. Dexter, recently appointed chief executive officer of Boston Psychopathic Hospital, succeeds Dr. Clarence A. Bonner.

Dr. Dexter is a graduate of Acadia University, Wolfville, Nova Scotia, and of McGill University. He has practised in Colorado and New York City. In 1917 he joined the staff of the Boston State Hospital. He was later transferred to the Taunton State Hospital and has acted as assistant to Commisisoner Kline since September, 1926.

POISON LIQUOR MORE DEADLY THAN WAR—It was recently stated by the Association Against the Prohibition Amendment that poisonous or impure liquor took the lives of 15,000 more Americans during the first seven years of prohibition than died on the battlefields of France during the World War. The statement was based on a review of statistics sponsored by Dr. Charles A. L. Reed, former president of the American Medical Association. He has been quoted as saying that 65,000 persons died in the United States from poisonous and impure liquor in the seven-year period between 1920 and 1927. Further that the eighteenth amendment has been responsible for the suppression of well-regulated distilleries and has caused the creation of millions of unregulated alcohol-making concerns in private homes and hundreds of commercialized moonshine plants.

LECTURESHIP NAMED FOR ABRAHAM FLEXNER—Vanderbilt University, in Nashville, Tenn., has just announced the establishment of the Abraham Flexner Lectureship in its School of Medicine, the gift of Mr. Flexner's brother, Bernard Flexner, New York attorney. Mr. Flexner, in a letter to Dr. James H. Kirkland, Chancellor of the University, said that he had set aside securities, the income from which would yield $2,500 a year, to be held in trust for the creation of the lectureship. He announced also that he was prepared to provide $5,000 to enable the school to inaugurate the series during the academic year 1928-9.

"I am making this gift for two reasons," he wrote. "In the first place, having been born in the South, I am deeply interested in doing what I can to stimulate higher education in the South, in the hope that it may be enabled to overtake other sections of the country, which, at the moment, are more fortunately circumstanced.

"In the second place, I desire to perpetuate the association of my brother with the recent organization of the School of Medicine of Vanderbilt University."

In announcing the acceptance of the gift, Dr. Kirkland said: "Probably the first lecturer will be some European scientist of outstanding reputation. It is expected that this lectureship will attract during coming years the leading scientists of the world, and it is not too much to hope that the series of published addresses may make important contributions to the sciences underlying the study of medicine."—*The New York Times.*

THREE DAYS IN BED FOR A COLD

It has been estimated that from ten to fifteen per cent. of the population have colds at the same time, and that these colds average from one to three per person per year. This puts colds into a class of diseases which, if made reportable, would claim serious consideration from public health workers. While for the most part colds are designated as minor ailments, they really are an important factor in public health since they inconvenience, and in many instances disable, from ten to fifteen million people at any given time. Add to this the economic factor of loss of working time and you get some idea of the important part that the common cold plays among industrial, mercantile and professional groups as well as in home and school.

Since there is always danger that colds may so reduce body resistance to other infections as to lead to such serious diseases as pneumonia, influenza, bronchitis and, from long neglected colds, even tuberculosis, there is every reason for taking colds seriously. While these diseases all develop from specific germs of which colds are not even a precursor, colds may break down the first defense against the development of such germs in the body. For this reason, if not for the cold alone, a wise plan is to remain at home and rest quietly in bed for two or three days when symptoms first appear. This may take courage, for it is so much easier to remain at one's post and struggle along. But if each individual lived up to this plan many of the more serious diseases might be averted, and the danger of spreading the infection to others would be greatly lessened.

A study of minor respiratory diseases made by the United States Public Health Service and reported in January, 1927, showed that "there is a high prevalence of colds in early winter, a decline to midsummer, another period of high prevalence in autumn, and some decline again in December." This shows that we have passed one high peak of colds and are

approaching the winter peak, so there is still time to take warning. If the cause and prevention of colds were as definitely known as for other diseases, diphtheria for instance, the problem would resolve itself into "take a preventive treatment and so protect yourself against the disease!" But it is not such a simple matter. In the first place no one specific germ has been found as the causative factor in the development of colds. This was shown in connection with the study of the common cold made at the University of Chicago in 1919, which involved the reporting of colds from 1200 students at the University of Chicago, 200 at California Institute of Technology and 200 at the University of Texas Medical School.

From a bacteriological study of nasopharyngeal swabs made from a small group of these students, it was found that while such organisms as streptococci, pneumococci, staphylococci, Pfeiffer bacilli or hemolytic streptococci were recognized, no one group predominated in the upper respiratory tract during a cold. This coincides with the findings of other investigators who suggest that many germs may produce colds. It was also shown that the same "throat flora" are found in normal persons and those with colds which seems to suggest that the organisms normally found in the throat are not the cause of colds but may develop during the course of a cold and so complicate the disease.

Since definite knowledge concerning colds is lacking, the control of colds resolves itself into a problem of taking certain precautions which may retard their development.—*Bulletin Connecticut State Department of Health.*

VOCATIONAL TRAINING FOR CARDIAC CHILDREN—The experiment in vocational training of boys and girls with heart affections, carried on for several years in special classes in two trade schools of New York's public-school system, seems to have been so far successful as to indicate the practicability and value of such training. Of 115 girls discharged during the first two and a half years of the classes, the majority of those who completed the course were recently found to be working at the trade they had learned or a related trade, and were earning higher wages with shorter periods of unemployment than those who entered occupations not related to their trade training.

Only those children are admitted to the classes who in the opinion of the examining physician will probably be able to carry on the industry and who can meet the educational requirements for working papers. The majority of the girls at work were able to carry on normal work without losing time on account of ill health. It is suggested that this class of children do not need segregation in special classes if they are kept under adequate medical supervision.—*United States Department of Labor, Children's Bureau, Washington.*

MEDICAL PHYSICS AT UNIVERSITY OF PENNSYLVANIA — Eldridge R. Johnson, formerly president of the Victor Talking Machine Company, has given $800,000 to the University of Pennsylvania to establish the Eldridge R. Johnson Foundation for Research in Medical Physics. Not more than $200,000 of the total will be expended for building and equipment; the income from the balance will be used for the "study and development of physical methods in the investigation of disease and in its cure; for the study of the important physical agencies or properties such as heat, light, electricity, sound, in their varied relations to the life of man, and to carry out investigations for the improvement of the instrumental applications of such agencies to medical purposes." This gift makes the total in the present campaign for funds thus far $10,000,000.—*Bulletin of the Association of American Medical Colleges.*

MEDICINAL OIL FOUND IN DOG FISH SALMON

In medicinal value, dog fish salmon's liver oil is equivalent to the best cod liver oil on the market, scientific investigations by the Prince Rupert Fisheries Experimental Station of Canada have established. This is reported to the Department of Commerce in advices received from the American Consul at Prince Rupert, G. C. Woodward. A statement based on his report was issued in full text as follows:

Scientists at the Prince Rupert Fisheries Experimental Station of the Biological Board of Canada have been gratified to receive from Professor Asmundson, professor of poultry husbandry at the University of British Columbia, confirmation of the local station's preliminary experiments relative to the content of Vitamin D in dog fish liver oil, according to information published in the *Prince Rupert News* of December 3 and forwarded to the Department of Commerce by American Consul G. Woodward at Prince Rupert.

Professor Asmundson reports, as a result of preliminary experiments that he himself has carried out, that dog fish liver oil is equivalent in medicinal values to the best cod liver oil on the market. This checks up with findings made at the local station by Acting Director H. N. Brocklesby, who has had the experiments personally in hand.

Professor Asmundson has used chicks in his experiments, while the experiments by Mr. Brocklesby were made with Albino rats. Both means served to fully establish the valuable Vitamin D content in dog fish liver oil. It is the eventual purpose of the experiments to establish the commodity as a commercial medicine. To that end there is much promise of success.—*United States Daily.*

NOTICES

UNITED STATES PUBLIC HEALTH SERVICE

Chronological List of Changes of Duties and Stations of Commissioned and Other Officers of the United States Public Health Service

December 28, 1927

Passed Assistant Surgeon K. F. Maxcy. Directed to proceed from Washington, D. C., to Warrenton, Va., and return, in connection with field investigations of typhus fever. December 20, 1927.

Assistant Surgeon G. J. Van Beeck. Directed to proceed from Ellis Island, N. Y., to Washington, D. C., and report to Chairman of Board convened to examine him to determine his fitness for promotion to the next higher grade. December 20, 1927.

Assistant Surgeon F. J. Halpin. Directed to report to Surgeon L. R. Thompson, Industrial Hygiene and Sanitation, for duty. December 20, 1927. Also directed to report to Chairman of Board on January 9, 1928, for examination to determine fitness for promotion. December 20, 1927.

Chief Pharmacist F. L. Gibson. Relieved from duty at San Francisco, Calif., on January 15, 1928, and assigned to duty at M. H. No. 66, Carville, La. December 21, 1927.

Surgeon L. L. Williams, Jr. Directed to proceed from Richmond, Va., to Nashville, Tenn., to attend meeting of the American Association for the Advancement of Science, December 26-31, 1927. December 23, 1927.

Surgeon L. L. Lumsden. Directed to proceed from Washington, D. C., to Fredericksburg, Va., and return, in connection with the supervision of studies of and demonstrations in rural sanitation in Virginia. December 23, 1927.

Surgeon P. D. Mossman. Directed to proceed from Rolla, Mo., to Washington, D. C., on or about January 9, 1928, for conference at the Bureau regarding the prevention and eradication of trachoma. December 23, 1927.

Surgeon Lawrence Kolb. Directed to proceed from Washington, D. C., to Baltimore, and Owings Mills, Md., New York City and Thiells, N. Y., and return, in connection with immigration matters. December 27, 1927.

BOARDS CONVENED

Board convened to meet at the Bureau, Washington, D. C., at 10 a. m., January 9, 1928, to examine Assistant Surgeons for promotion to the grade of Passed Assistant Surgeon. December 20, 1927.

Detail for the Board:

Assistant Surgeon General R. C. Williams, Chairman.

Surgeon Lawrence Kolb—Member.

Surgeon Grover Kempf—Recorder.

Board convened to meet at call of Chairman to reexamine an alien.

Detail for Board: San Francisco, California.

Senior Surgeon J. C. Perry, Chairman.

Surgeon Dunlop Moore—Member.

Surgeon J. R. Ridlon—Recorder.

JANUARY 4, 1928

Passed Assistant Surgeon R. D. Lillie. Directed to proceed from Washington, D. C., to Warrenton, Va., and return, in connection with field investigations of tularaemia. December 23, 1927.

Surgeon Edward Francis. Directed to proceed from Washington, D. C., to Warrenton, Va., and return, in connection with field investigations of tularaemia. December 23, 1927.

Sanitary Engineer H. W. Streeter. Directed to proceed from Cincinnati, Ohio, to Houston, Tex., and return, to attend session of the Tenth Texas Water Works Short School, and present a paper. December 31, 1927.

A. A. Surgeon W. K. Sharp, Jr. Directed to proceed from Nashville, Tenn., to Atlanta, Ga., and return, to attend meeting of the Georgia Health Officers, January 20-21, 1928. December 31, 1927.

Surgeon L. L. Lumsden. Directed to proceed from Washington, D. C., to Lansing, Mich., and return, to represent the Service and deliver an address at meeting of the Michigan Public Health Association and Public Health Conference of the Michigan Department of Health, January 11-13, 1928. January 3, 1928.

Assistant Surgeon General W. F. Draper. Directed to proceed from Washington, D. C., to Norfolk, Va., and return, for the purpose of conferring with State and local health authorities concerning the sanitation of shellfish growing areas. January 3, 1928.

Sanitary Engineer L. C. Frank. Directed to proceed from Montgomery, Ala., to Washington, D. C., and return, for temporary duty in connection with milk investigations. January 3, 1928.

Surgeon Lawrence Kolb. Directed to proceed from Washington, D. C., to Wrentham, Mass., New York City, N. Y., Princeton and Vineland, N. J., and return, in connection with immigration matters. January 3, 1928.

Surgeon W. L. Treadway. Directed to proceed from Dublin, Irish Free State, to Paris, France, and return, for conference. January 3, 1928.

Associate Sanitary Engineer A. W. Fuchs. Directed to proceed from Jackson, Miss., to Norfolk, Va., and return, for the purpose of an examination on January 16, 1928, to determine his fitness for promotion to the next higher grade. January 3, 1928.

BOARDS CONVENED

Board of officers convened at Marine Hospital No. 82, Norfolk, Va., to examine Associate Sanitary Engineer to determine fitness for promotion to next higher grade.

Detail for the Board: January 16, 1928.

Surgeon A. D. Foster, Chairman.

Assistant Surgeon B. J. Macauley, Member.

Sanitary Engineer R. E. Tarbett, Recorder.

Official:

H. S. CUMMING, *Surgeon General.*

A CORRECTION

In the Harvard Medical Society notice in our issue of January 5, the title of Dr. Cushing's address appeared incorrectly. Dr. Cushing spoke on "Who Put the Fox in Foxglove?"

UNITED STATES CIVIL SERVICE EXAMINATIONS

The United States Civil Service Commission announces the following open competitive examinations:

ASSISTANT MEDICAL OFFICER
ASSOCIATE MEDICAL OFFICER
MEDICAL OFFICER
SENIOR MEDICAL OFFICER

Applications for these positions will be rated as received by the Civil Service Commission at Washington, D. C., until June 29, 1928.

The examinations are to fill vacancies in various branches of the service throughout the United States.

There are vacancies in practically all branches of medicine and surgery, but there is especial need for medical officers qualified in tuberculosis or neuropsychiatry.

Competitors will not be required to report for examination at any place, but will be rated on their education, training, and experience.

GRADUATE NURSE
GRADUATE NURSE (VISITING DUTY)
GRADUATE NURSE (JUNIOR GRADE)

Applications for these positions will be rated as received by the Civil Service Commission at Washington, D. C., until June 30.

The examinations are to fill vacancies in the Departmental Service, Washington, D. C., in the Veterans' Bureau, and in the Indian and Public Health Services.

The United States Civil Service Commission announces the following open competitive examination:

DIETITIAN

Applications for dietitian will be rated as received by the Civil Service Commission at Washington, D. C., until June 29, 1928.

The examination is to fill vacancies under the Public Health Service and the Veterans' Bureau throughout the United States.

Full information may be obtained from the United States Civil Service Commission at Washington, D. C., or the secretary of the United States civil service board of examiners at the post office or customhouse in any city.

GENERAL INFORMATION FOR PHYSICIANS VISITING GERMANY

The Central Information Buro for all questions dealing with the medical sphere of interest in Germany is in the Kaiserin Friedrich-Haus, Berlin N.W. 6, Luisenplatz 2/4. The Buro has an official character and gives information free of charge and from an entirely objective point of view. Every doctor who comes to Germany for studying purposes will do well to enter into communication with this Institution just before or immediately after his arrival in Germany.

REPORTS AND NOTICES OF MEETINGS

FALL RIVER MEDICAL SOCIETY

At the meeting of the Fall River Medical Society held December 14 the following officers were elected for the year 1928:

President: Dr. John H. Lindsey.
Vice-President: Dr. Edward L. Merritt.
Secretary: Dr. Howard P. Sawyer.
Treasurer: Dr. Omer E. Boivin.
Program Committee: Dr. Thomas Almy (Chairman), Dr. Warren Atwood, Dr. Clifton Leech.
Executive Committee: Dr. Elmer Learned (Chairman), Dr. William Boudreau.
Librarian: Dr. Thomas Gunning.
Assistant Librarian: Dr. George Richards.
Refreshments: Dr. George Kershaw.

The Fall River Medical Society was started in 1885 but was not incorporated until 1905. The year 1927 was really the forty-second year of the society's existence with meetings held on the second and fourth Wednesdays of each month except during the summer.

During the year 1927 the following speakers presented papers before the society:

Dr. John M. Birnie, Springfield, Mass. The Diagnosis of Abdominal Emergencies.

Dr. Oswald S. Lowsley, New York City. Some New Developments in Urologic Surgery.

Dr. Charles Whelan, Boston, Mass. Further Considerations in the Treatment of Malignant and Non-malignant Neoplasms.

Dr. Samuel Morein, Fall River, Mass. The Diagnosis of Gall-Bladder Disease.

Dr. Howard M. Clute, Boston, Mass. Hyperthyroidism and Heart Failure.

Dr. Paul N. Jepson, Boston, Mass. The Common Fractures of the Upper Extremity.

Dr. John Lovett Morse, Boston, Mass. The Vagaries of the Pediatrician.

Dr. John B. Deaver, Philadelphia. Surgical Aspects of Pancreatic Disease.

Dr. Joe Vincent Meigs, Boston, Mass. Benign Uterine Bleeding.

Dr. Delbert L. Jackson, Boston. Placenta Accreta.

Dr. Edwin P. Ruggles, Boston. The Importance of Breast Feeding.

Dr. Cadis Phipps, Boston, Mass. Blood Pressure.

Dr. John S. Hodgson, Boston, Mass. Head Injuries from the General Practitioner's Point of View.

Dr. Ralph Chambers, Taunton, Mass. Mental Diseases.

Dr. John W. Keefe, Providence, R. I. Aids to Greater Safety in Operations.

Dr. Samuel Goddard, Brockton, Mass. Some Practical Points in the Early Diagnosis of Acute Abdominal Conditions.

DR. THOMAS ALMY,
President for 1927.

DR. EDWARD L. MERRITT,
Secretary 1921 to 1927.

ESSEX SOUTH DISTRICT MEDICAL SOCIETY

The regular meeting of the Essex South District Medical Society was held Wednesday, January 4, 1928, at Deer Cove Inn, Swampscott.

Dinner at 7 p. m.

Dr. Frank Lahey spoke on "Differential Points of Importance to the General Practitioner in Surgical Diagnosis."

Discussion by Dr. Walter Phippen of Salem and Dr. N. P. Breed of Lynn.

General discussion from the floor.

Attendance 87. Adjourned 10 p. m.

WM. T. HOPKINS, *Reporter.*

GREATER BOSTON MEDICAL SOCIETY

A regular meeting of the society will be held on Monday, January 16, 1928, at 8:15 p. m., at the Boston Medical Library.

PROGRAM

1. "Spinal Anesthesia and Its Uses. A report of 500 consecutive cases." Boris Rapoport, M.D.
2. "Ethylene Anesthesia." Lincoln F. Sise, M.D.
3. "Anesthesia by the Rectal Administration of Ether and Oil." Freeman Allen, M.D.

Discussion. All those who are interested are cordially invited.

Refreshments.

ROBERT SLATER, M.D., *Secretary.*

68 Bay State Road, Boston, Mass.

SOUTH END NEIGHBORHOOD MEDICAL CLUB

The next monthly meeting of the South End Neighborhood Medical Club will be held at the office of the Boston Tuberculosis Association, 554 Columbus Avenue, Boston, on Tuesday, January 17, 1928, at 12 noon. Dr. Fred M. Kennison will be the chairman.

The speaker will be Dr. Foster S. Kellogg, Chief of the Out-Patient Department of the Lying-In Hospital at 221 Longwood Avenue, Boston, who will talk on "Some Topics in Obstetrics, of Interest to the General Practitioner". All physicians are cordially invited.

Following the meeting luncheon will be served.

MIDDLESEX NORTH MEDICAL SOCIETY

The quarterly meeting of the Middlesex North Medical Society will be held on Wednesday, January 25, at the Y. W. C. A., Lowell, Mass. The main speaker will be Dr. Robert B. Greenough, who will talk on the subject of "Cancer."

T. A. STAMAS.

ANNUAL MEETING OF THE BOSTON MEDICAL LIBRARY

This meeting will be held Tuesday evening, January 17, at 8:15 P. M. Dr. Richard P. Strong will speak on "Medical Observations Relating to Equatorial Africa."

NEW ENGLAND HEART ASSOCIATION MEETING POSTPONED

The meeting of the New England Heart Association, scheduled for January 19, has been postponed to February 6 to coincide with the meeting of the American Heart Association. The association will meet in John Ware Hall of the Boston Medical Library, 8 The Fenway, Boston, Mass. The program follows:

1. Effects of Accidents on Cardiac Employees. Dr. W. Irving Clark, Worcester, Mass.
2. Accidents and Heart Disease from the Insurance Company's Point of View. Gay Gleason, Esq., Boston, Mass.
3. Accidents and Heart Disease from the Court's Point of View. Commissioner Frank J. Donahue, Industrial Accident Board, Commonwealth of Massachusetts.

SOCIETY MEETINGS

January 12—Massachusetts General Hospital Staff meeting. Complete notice appears on page 1295, issue of January 5.

January 16—Greater Boston Medical Society. Detailed notice appears elsewhere on this page.

January 17—South End Neighborhood Club. Detailed notice appears elsewhere on this page.

January 17—Annual Meeting of the Boston Medical Library. Complete notice on page 1339, this issue.

January, February, March and April, 1928—Last Saturday at 11 A. M. Cheever Amphitheatre, Staff Clinical Meetings at Boston City Hospital.

February 6—New England Heart Association. Detailed notice appears on page 1339, this issue.

DISTRICT MEDICAL SOCIETIES

Essex North District Medical Society

May 2, 1928 (Wednesday)—Annual meeting at 12:30 P. M.

May 3, 1928 (Thursday)—Censors meet for examination of candidates at Hotel Bartlett, 95 Main Street, Haverhill, at 2 P. M. Candidates should apply to the Secretary, J. Forrest Burnham, M.D., 567 Haverhill Street, Lawrence, at least one week prior.

Essex South District Medical Society

February 1 (Wednesday)—Council meeting, Boston.

February 8 (Wednesday)—Danvers State Hospital. Clinic at 4 P. M. Buffet supper at 6 P. M., followed by

Dr. Abraham Myerson, "Some Aspects of Mental Hygiene."

Discussion by Drs. W. F. Wood of Hathorne and G. M. Kline of Beverly, 10 minutes each, and from the floor.

March 7 (Wednesday)—Lynn Hospital. Clinic at 5 P. M. Dinner at 7 P. M.

Dr. Henry R. Viets, "The Acute Infections of the Nervous System," with lantern slides and moving pictures.

Discussion by Drs. W. V. McDermott of Salem and J. W. Trask of Lynn, 10 minutes each, and from the floor.

April 11 (Wednesday)—Essex Sanatorium, Middleton. Clinic at 5 P. M. Dinner at 7 P. M.

Dr. Raymond S. Titus, "Obstetrical Emergencies."

Discussion by Drs. J. J. Egan of Gloucester and A. T. Hawes of Lynn, 10 minutes each, and from the floor.

May 3 (Thursday)—Censors meet at Salem Hospital for the examination of candidates at 3:30 P. M. Candidates should apply to the Secretary, Dr. R. E. Stone, Beverly, at least one week prior.

May 8 (Tuesday)—Annual meeting. Place and speaker to be announced.

Middlesex North District Medical Society

January 25—Detailed notice appears on page 1339 of this issue.

Suffolk District Medical Society

Combined meetings of the Suffolk District Medical Society and the Boston Medical Library will be held at the Boston Medical Library, 8 The Fenway, at 8:15 P. M., as follows:

January 25, 1928—General meeting in association with the Boston Medical Library.

Dr. George W. Crile, Lakeside Clinic, Cleveland, Ohio. Title to be announced later.

February 29—Surgical Section. Subject to be announced later.

March 28—Medical Section. "The Use and Misuse of Vaccines." Dr. Hans Zinsser, Dr. Francis M. Rackemann, Dr. Charles H. Lawrence.

April 25—Annual meeting. Election of officers. Paper of the evening to be announced later.

The medical profession is cordially invited to attend these meetings.

Notices of meetings must reach the JOURNAL office on the Friday preceding the date of issue in which they are to appear.

BOOK REVIEWS

"Applied Physiology." By SAMSON WRIGHT, M.D., M.R.C.P. Oxford University Press.

This book of 418 pages is a most excellent and concise summary of physiology and pathological physiology of the organism as it is met in clinical medicine. The important factor in each problem seems to have been concisely developed with unusual clarity and the important advances in physiology are adequately described and their relation to clinical medicine excellently discussed. Such important subjects as cyanosis, dyspnea, edema, auricular fibrillation, etc., are gone into with considerable thoroughness, and yet the amount of ground which this small book covers is extraordinarily large. This book is very highly recommended both for students who are passing from their study of physiology to that of clinical medicine and for all clinicians who wish to study the modern point of view of physiological function in regard to disease. It is one of the best books the reviewer has seen in a very long time and fills a very important need. Every physician could read it with profit.

Potassium and Tartrates. A Review by RALPH W. WEBSTER, Ph.D.; M.D. With a Digest of the Literature by W. A. BRENNAN, A.B. The Commonwealth Press, Chicago, U. S. A. 1927.

A small book in which the first nineteen pages is devoted to a summary of the physiological effects of potassium and tartrates upon the body. Following this summary is a bibliography of many of the articles on these subjects which is quite interesting but in which the English is rather obscure. In the translated articles, particularly, it is sometimes difficult to understand the meaning of the summaries. One look would be a help, however, to those interested in this specialized field.

Lectures on the Biologic Aspects of Colloid and Physiologic Chemistry. A series of lectures given at the Mayo Foundation and the Universities of Minnesota, Iowa, Washington (St. Louis) and the Des Moines Academy of Medicine, Iowa. W. B. Saunders Co. 1925-1926.

A very interesting series of lectures given by active workers in colloidal chemistry. These lectures summarize their work in this important field and this book, therefore, contains many of the newer conceptions of the chemistry of living organisms. To those interested in this field of medicine this book will be interesting.

The lectures are by the following well known scientists: Robert A. Millikan, Martin H. Fischer, Robert Chambers, Ross A. Gortner, E. Franklin Burton, William T Bovie.

1926 Collected Papers of the Mayo Clinic and the Mayo Foundation, Rochester, Minnesota. Octavo of 1329 pages, with 386 illustrations. Philadelphia and London: W. B. Saunders Company, 1927. Cloth, $13.00 net.

The *Collected Papers of the Mayo Clinic and Mayo Foundation* presents in a very attractive manner the multiform activities of this great institution. It is stated in the preface that the volume was compiled with special reference to the needs of the general surgeon and diagnostician. The experimental work, however, receives an important amount of space, together with the more immediately practical articles.

The general plan of the volume is similar to those issued in other years: the articles are grouped under the anatomical system of the body, those dealing with the alimentary tract forming the longest section.

The volume forms a valuable reference book, making readily available the numerous articles that have appeared from time to time in a great diversity of periodicals.

"Pathologische Anatomische Diagnostik and Der Leiche." By DR. HERMANN BEITZKE. J. B. Bergmann, Munchen.

This volume of 467 pages undertakes the description of gross morbid pathology as seen at the necropsy table. It is filled with rather inadequate drawings of gross pathological material. With all the great number of pictures it seems unfortunate that they do not more clearly demonstrate the pathological conditions that they were meant to represent. The text is adequate as a description for gross pathological dissections.